

**EPA Superfund  
Record of Decision:**

**PICKETTVILLE ROAD LANDFILL  
EPA ID: FLD980556351  
OU 01  
JACKSONVILLE, FL  
09/28/1990**

Text :

- \* IMPLEMENTATION OF INSTITUTIONAL CONTROLS INCLUDING DEED RESTRICTIONS THAT WILL REGULATE FUTURE DEVELOPMENT OF THE SITE, AND RESTRICTIONS LIMITING GROUND WATER USAGE IN THE SURFICIAL AQUIFER IN THE AREA IMMEDIATELY NORTH OF THE SITE,
- \* INSTALLATION OF A PROTECTIVE COVER SYSTEM THAT COMPLIES WITH THE STATE OF FLORIDA REQUIREMENTS FOR CLOSURE OF MUNICIPAL LANDFILLS (FAC 17-701.070),
- \* INSTALLATION OF A PERIMETER SECURITY FENCE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE,
- \* IMPLEMENTATION OF A LONG-TERM GROUND WATER MONITORING PROGRAM TO PERIODICALLY EVALUATE THE HYDROGEOLOGIC CONDITIONS AND QUALITY OF GROUND WATER UNDERLYING THE SITE IN ACCORDANCE WITH THE ALTERNATE CONCENTRATION LIMIT (ACL) DEMONSTRATION,
- \* EXTENSION OF THE CITY WATER MAIN TO RESIDENTS LOCATED IMMEDIATELY NORTH OF THE SITE TO SUPPLY ALTERNATIVE SOURCES OF POTABLE WATER,
- \* IMPLEMENTATION OF A PLUG AND ABANDONMENT PROGRAM FOR WATER SUPPLY WELLS LOCATED IN THE AREA IMMEDIATELY NORTH OF THE SITE.
- \* RESTORATION OF THE LITTLE SIXMILE CREEK WILL BE CONDUCTED TO REMOVE WASTE WHICH HAVE MIGRATED FROM THE SITE INTO THE CREEK. AN ECOLOGICAL STUDY OF LITTLE SIXMILE CREEK WILL BE CONDUCTED TO DETERMINE IF ANY NEGATIVE ENVIRONMENTAL IMPACTS TO THE CREEK HAVE OCCURRED. IN THE EVENT THAT THE ECOLOGICAL STUDY REVEALS CONTAMINATION WHICH MAY IMPAIR THE ECOLOGICAL COMMUNITY, ADDITIONAL REMEDIAL ACTIONS FOR THE CREEK MAY BE NECESSARY.

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#### STATUTORY DETERMINATIONS

THE SELECTED REMEDY IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, COMPLIES WITH FEDERAL AND STATE REQUIREMENTS THAT ARE LEGALLY APPLICABLE OR RELEVANT AND APPROPRIATE TO THE REMEDIAL ACTION, AND IS COST-EFFECTIVE. THIS REMEDY UTILIZES PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES, TO THE MAXIMUM EXTENT PRACTICABLE FOR THIS SITE. HOWEVER, BECAUSE TREATMENT OF THE PRINCIPAL THREATS OF THE SITE WAS NOT FOUND TO BE PRACTICABLE, THIS REMEDY DOES NOT SATISFY THE STATUTORY PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT.

BECAUSE THIS REMEDY WILL RESULT IN HAZARDOUS SUBSTANCES REMAINING ON SITE ABOVE HEALTH BASED LEVELS, A REVIEW WILL BE CONDUCTED WITHIN FIVE YEARS AFTER COMMENCEMENT OF REMEDIAL ACTION TO ENSURE THAT THE REMEDY CONTINUES TO PROVIDE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT.

GREER C. TIDWELL  
EPA REGIONAL ADMINISTRATOR

DATE: SEPTEMBER 28, 1990

#INT  
1.0 INTRODUCTION

THE PICKETTVILLE ROAD LANDFILL SITE WAS PROPOSED FOR INCLUSION ON THE NATIONAL PRIORITIES LIST (NPL) IN OCTOBER OF 1981. THE SITE HAS BEEN THE SUBJECT OF A REMEDIAL INVESTIGATION (RI) AND FEASIBILITY STUDY (FS) PERFORMED BY THE RESPONSIBLE PARTIES UNDER A CONSENT AGREEMENT WITH THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). THE RI CONSISTS OF A TWO PHASE INVESTIGATION TO FULLY CHARACTERIZE THE PRESENCE AND EXTENT OF CONTAMINATION ON AND OFF SITE BY EVALUATING SURFACE AND SUBSURFACE SOILS, SEDIMENTS, SURFACE WATER, AND GROUNDWATER. IT WAS COMPLETED IN MARCH OF 1987. THE RI WAS LATER REVISED AND THE UPDATED VERSION WAS FINALIZED IN JULY OF 1987. TO ADDRESS RECOGNIZED DEFICIENCIES IN THE RI AND TO PROVIDE A FULLER EVALUATION OF CONTAMINATION AT THE SITE, AN ADDITIONAL SITE CHARACTERIZATION WAS CONDUCTED AND COMPLETED IN NOVEMBER OF 1988. THE RI ALSO PROVIDED A BASIS FOR A SITE SPECIFIC RISK ASSESSMENT WHICH WAS COMPLETED ON AUGUST 17, 1989. THE FEASIBILITY STUDY (FS) DEVELOPS AND ANALYZES POTENTIAL ALTERNATIVES FOR REMEDIATION AT THE SITE AND WAS ISSUED TO THE PUBLIC IN DRAFT FORM IN JUNE 1990.

1.1 SCOPE AND ROLE OF RESPONSE ACTION

REMEDICATION AT THE PICKETTVILLE ROAD LANDFILL SITE WILL ADDRESS THE SURFICIAL SOILS/WASTE AND THE GROUND WATER. THEREFORE, EPA HAS ORGANIZED THE REMEDIAL ACTION INTO A FINAL PHASE OR ACTION, WHICH IS ADDRESSED IN THIS RECORD OF DECISION (ROD).

THIS ROD HAS BEEN PREPARED TO SUMMARIZE THE REMEDIAL ALTERNATIVE

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SELECTION PROCESS AND TO PRESENT THE SELECTED REMEDIAL ALTERNATIVE FOR THE PICKETTVILLE ROAD LANDFILL SITE.

#SNLD  
2.0 SITE NAME, LOCATION, AND DESCRIPTION

THE PICKETTVILLE ROAD LANDFILL SITE (PRLS) OCCUPIES 52.5 ACRES FIVE MILES NORTHWEST OF DOWNTOWN JACKSONVILLE, FLORIDA (SEE FIGURE 2-1). THE ADDRESS OF THE SITE IS 5150 PICKETTVILLE ROAD, AND IT IS LOCATED IN A MOSTLY OPEN, RURAL AREA WITH SOME INDUSTRIAL USE. THE LANDFILL IS

BORDERED TO THE NORTH BY PICKETTVILLE ROAD, TO THE EAST BY LITTLE SIXMILE CREEK, AND TO THE WEST AND SOUTH BY UNOCCUPIED LAND. OLD KINGS ROAD INTERSECTS PICKETTVILLE ROAD TO THE WEST OF THE SITE AND EDGEWOOD DRIVE INTERSECTS PICKETTVILLE ROAD TO THE EAST.

SURROUNDING THE PICKETTVILLE ROAD SITE ARE THE JACKSONVILLE SHIPYARDS WASTE DISPOSAL AREA, THE WESTVIEW CEMETERY, AND THE REALCO DEMOLITION LANDFILL, ALL OF WHICH LIE TO THE NORTHWEST OF THE SITE, AND THE LOGISTICAL TRANSPORTATION AND PETROLEUM COMPANY WHICH IS SITUATED TO THE NORTHEAST. THE AREA IS MODERATELY POPULATED WITH THE NEAREST RESIDENTIAL AREAS LOCATED APPROXIMATELY 600 FEET WEST OF THE SITE. MOST OF THE PROXIMATE PRIVATE RESIDENCES ARE LOCATED TO THE NORTH (4), NORTHWEST (7), WEST (12), AND SOUTHWEST (25), BUT OTHER NEARBY HOMES LIE SOUTH (8) AND SOUTHWEST (13) OF THE SITE ON THE OPPOSITE SIDE OF LITTLE SIXMILE CREEK. THE BLUE FLAME LOUNGE IS LOCATED NEAR THE EASTERN BOUNDARY OF THE SITE, NEAR THE INTERSECTION OF EDGEWOOD DRIVE AND PICKETTVILLE ROAD. A MAP OF THE SITE VICINITY IS SHOWN IN FIGURE 2-2.

THE SITE ITSELF HAS AN AVERAGE SLOPE RANGING FROM FOUR TO SEVEN PERCENT. SURFACE WATER DRAINS IN A NORTHERLY DIRECTION TOWARDS LITTLE SIXMILE CREEK. MOST OF THE SURFACE OF THE SITE IS NOW COVERED WITH VEGETATION. THERE IS EVIDENCE THAT INDISCRIMINATE DUMPING OF HOUSEHOLD GARBAGE IS OCCURRING ON THE SITE.

LITTLE SIXMILE CREEK, THE CLOSEST SURFACE WATER BODY, FLOWS NORTHWARD AND DISCHARGES INTO SIXMILE CREEK APPROXIMATELY 1000 FEET NORTH OF THE PICKETTVILLE ROAD LANDFILL SITE, JUST NORTH OF THE REALCO PROPERTY. SIXMILE CREEK, WHICH FLOWS FROM EAST TO WEST, EVENTUALLY DISCHARGES INTO THE RIBAUT RIVER, A MAIN TRIBUTARY OF THE ST. JOHNS RIVER.

CURRENTLY, THERE ARE NO EFFECTIVE SECURITY MEASURES AT THE PICKETTVILLE ROAD LANDFILL SITE. ORIGINALLY A FENCE SEPARATED THE LANDFILL FROM PICKETTVILLE ROAD AND EXTENDED ABOUT 500 FEET SOUTH AT THE EASTERN AND WESTERN ENDS OF THE SITE; HOWEVER, THIS FENCE HAS BEEN BREACHED IN SEVERAL PLACES AND NOW ALLOWS FOR UNRESTRICTED ACCESS. FOR THE REMAINING BOUNDARY OF THE SITE, ONLY WOODLANDS AND THE CHANNEL OF LITTLE SIXMILE CREEK SEPARATE THE SITE FROM SURROUNDING PROPERTIES.

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#SH  
3.0 SITE HISTORY

THE PICKETTVILLE ROAD LANDFILL BEGAN OPERATION ON A LIMITED BASIS IN THE EARLY 1940'S. HOWEVER, UNTIL THE 1960'S, THE PROPERTY WAS USED PRIMARILY AS A BORROW PIT. FILL MATERIAL, PARTICULARLY SAND, WAS EXTRACTED FROM THE SITE, RESULTING IN THE PRESENCE OF LARGE, BELOW GRADE EXCAVATIONS. BORROWING OPERATIONS APPARENTLY INVOLVED THE EXCAVATION OF THE SAND TO A DEPTH OF APPROXIMATELY 20 FEET, AT WHICH POINT A CONFINING CLAY LAYER WAS ENCOUNTERED. INTERVIEWS WITH MR. CLAUSSEN, FORMER OWNER OF THE SITE, INDICATED THAT EXCAVATIONS AT THE SITE MAY HAVE BEEN AS

DEEP AS THE ROCK AQUIFER (APPROXIMATELY 50 FEET BELOW EXISTING LAND SURFACE) IN CERTAIN LOCATIONS. THESE EXCAVATIONS WERE SUBSEQUENTLY BACKFILLED WITH MUNICIPAL AND INDUSTRIAL WASTES. AMONG THE WASTES KNOWN TO HAVE BEEN DISPOSED OF AT THE SITE ARE WASTE OIL, LEAD-ACID BATTERY LIQUID WASTE, BATTERY CASINGS, LIGHT TERPENE SLUDGE, AND POLYCHLORINATED BIPHENYLS (PCBS).

THE SITE WAS ACQUIRED BY PROPERTY AND SECURITIES CORPORATION (P&S) OF AUGUSTA, GEORGIA IN MAY OF 1966. IN 1968, THE CITY OF JACKSONVILLE BEGAN LEASING THE PROPERTY FROM P&S, AND FULL-SCALE LANDFILL OPERATIONS COMMENCED. A REVIEW OF AERIAL PHOTOGRAPHS OF THE SITE INDICATED THAT THE WASTE WAS DEPOSITED AT THE SITE USING THE MOVING-WALL TECHNIQUE.

THE PICKETTVILLE ROAD LANDFILL SITE HAD BEEN IN ALMOST CONTINUOUS USE SINCE 1967. INITIALLY ALL TYPES OF WASTE, INCLUDING RESIDENTIAL GARBAGE WERE DISPOSED OF AT THE SITE. HOWEVER, IN 1971, RESIDENTIAL GARBAGE (SANITARY WASTE) WAS DIVERTED TO OTHER MUNICIPAL LANDFILLS AND THE SITE WAS DEDICATED FOR THE DISPOSAL OF HAZARDOUS WASTES.

AN OPERATIONAL PLAN FOR THE SITE WAS PREPARED BY THE CITY IN JANUARY OF 1972, AND ON SEPTEMBER 26, 1972, THE JACKSONVILLE PUBLIC HEALTH AND WELFARE COMMITTEE APPROVED A RESOLUTION PERMITTING THE USE OF THE PICKETTVILLE SITE AS A MUNICIPAL DUMP. ON DECEMBER 10, 1973 THE COMMITTEE SUBMITTED AN APPLICATION TO THE CITY DEPARTMENT OF HEALTH, WELFARE, AND BIO-ENVIRONMENTAL SERVICES FOR THE DEVELOPMENT OF THE PICKETTVILLE SITE AS A SANITARY LANDFILL. ON FEBRUARY 20, 1974, THE DEPARTMENT OF HEALTH, WELFARE, AND BIO-ENVIRONMENTAL SERVICES FORWARDED THE APPLICATION TO THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION (FDER) AND RECOMMENDED THE ISSUANCE OF A TEMPORARY OPERATING PERMIT PENDING THE EXECUTION OF HYDROLOGICAL AND SOIL STUDIES. ON MARCH 12, FDER FORWARDED A TEMPORARY OPERATING PERMIT DATED JANUARY 1, 1974.

ON APRIL 13, 1976, THE JACKSONVILLE PUBLIC WORKS DEPARTMENT NOTIFIED THE DUVAL COUNTY DEPARTMENT OF HEALTH AND WELFARE THAT THE PICKETTVILLE SITE WAS TO BE CLOSED AND PROVIDED A PLAN FOR THE ADMINISTRATION OF THE CLOSURE. ON MARCH 2, 1977, THE CITY NOTIFIED FDER THAT THE SITE WOULD BE CLOSED TO NONHAZARDOUS WASTES AS OF MARCH 4, 1977, BUT THAT "HAZARDOUS WASTE DISPOSAL" COULD CONTINUE UNTIL A SUITABLE ALTERNATIVE SITE COULD BE FOUND. ALL WASTE DISPOSAL AT THE SITE CEASED IN JULY OF

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1977, AND THE LANDFILL WAS CLOSED BY THE CITY USING A SOIL COVER THAT WAS GRADED AND SEEDED WITH VEGETATION. THE CITY TERMINATED THE LEASE IN NOVEMBER OF 1977, BUT MAINTAINED RESPONSIBILITY FOR MONITORING GROUND WATER QUALITY AT THE SITE.

OWNERSHIP OF THE SITE WAS TRANSFERRED TO HENRY A. CLAUSSEN IN AUGUST 1977. ON JANUARY 1983 HENRY CLAUSSEN TRANSFERRED OWNERSHIP OF THE SITE TO JAX 51, INC., A GEORGIA COMPANY INCORPORATED ON THE SAME DAY.

### 3.1 ENFORCEMENT ACTIVITIES

ROUTINE INSPECTIONS CONDUCTED AT THE PICKETTVILLE ROAD LANDFILL BETWEEN MAY 1975 AND NOVEMBER 1976 INDICATED A NUMBER OF SHORTCOMINGS WITH DISPOSAL TECHNIQUES AT THE SITE. DURING THAT PERIOD, INSPECTIONS CONDUCTED BY THE COUNTY DEPARTMENT OF HEALTH AND WELFARE INDICATED PROBLEMS WITH THE DISPOSAL OF WASTE OIL, DISPOSAL OF WASTE PAINT WITHOUT A SOIL COVER, A LACK OF READILY AVAILABLE COVER SOIL, POOR SURFACE DRAINAGE, INCONSISTENT COVER DEPTH, AND INADEQUATE CONTROL OF LEACHATE ALONG LITTLE SIXMILE CREEK. ADDITIONALLY, THESE INSPECTIONS REVEALED THAT EXCAVATION WAS OCCURRING BENEATH THE WATER TABLE; A DRAINAGE CANAL HAD BEEN DUG TO LITTLE SIXMILE CREEK; AND WATER PUMPED FROM THE INTERIOR OF THE SITE WAS BEING SPREAD THROUGHOUT THE LANDFILL AREA.

AFTER REVIEWING THE RESULTS OF GROUNDWATER ANALYSES CONDUCTED AT THE SITE IN NOVEMBER 1979, FDER FOUND ELEVATED LEVELS OF IRON AND CHROMIUM IN ONSITE WELLS. EPA PREPARED THE POTENTIAL HAZARDOUS WASTE SITE INSPECTION REPORT IN MAY OF 1980 AND, IN CONCERT WITH FDER, CONDUCTED AN INSPECTION OF THE ADJACENT JACKSONVILLE SHIPYARDS WASTE DISPOSAL SITE BETWEEN MAY AND AUGUST OF THAT SAME YEAR.

ON MARCH 26, 1981, FDER NOTIFIED THE CITY OF JACKSONVILLE THAT THE PICKETTVILLE SITE HAD BEEN CLASSIFIED AS AN "OPEN DUMP" UNDER THE RESOURCE CONSERVATION AND RECOVERY ACT (RCRA). THIS CLASSIFICATION WAS LATER SUSPENDED PENDING FURTHER DISCUSSIONS BETWEEN FDER AND THE CITY AND THE ANTICIPATED COLLECTION OF ADDITIONAL SAMPLES.

IN JULY OF 1981, EPA CONDUCTED AN EXTENSIVE SITE RECONNAISSANCE WHICH INCLUDED GROUND WATER, SURFACE WATER, SOIL, AND LEACHATE SAMPLING. THE MITRE MODEL SCORING OF THE SITE WAS COMPLETED ON OCTOBER 23, 1981. THE SUMMARY REPORT OF THE JULY RECONNAISSANCE WAS COMPLETED IN NOVEMBER 1981.

FROM MARCH 5 TO MARCH 9, 1982, EPA NOTIFIED H.H. CLAUSSEN AND THE CITY OF JACKSONVILLE OF THEIR ROLES AS POTENTIALLY RESPONSIBLE PARTIES (PRPS) AT THE PICKETTVILLE ROAD SITE. SUBSEQUENT MEETINGS IN JUNE AND JULY OF 1982 BETWEEN EPA FDER, THE CITY, THE COUNTY, AND THE PROPERTY OWNER DELINEATED SAMPLING AND MONITORING PARAMETERS, AND INDICATED A NEED TO RECTIFY EROSION/LEACHATE PROBLEMS AT THE SITE. A RETAINING WALL TO CORRECT THE EROSION/LEACHATE PROBLEM WAS COMPLETED ON NOVEMBER 1, 1982, HOWEVER AN EPA INSPECTION NOTED THE PERSISTANCE OF THE LEACHATE PROBLEM

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AT THE SITE.

ON MARCH 11, 1983, EPA PREPARED THE SITE INSPECTION REPORT FOR THE PICKETTVILLE ROAD LANDFILL SITE. ON MARCH 18 FDER INDICATED INTEREST IN PURSUING ENFORCEMENT AT THE SITE. IN AUGUST OF 1983, THE DEPARTMENT OF HEALTH, WELFARE, AND REHABILITATIVE SERVICES INDICATED THAT NO KNOWN CONTAMINANTS WERE STORED AT THE DISPOSAL SITES IN THE VICINITY OF THE PICKETTVILLE ROAD LANDFILL. IN SEPTEMBER OF THE SAME YEAR, THE PRLS WAS LISTED ON THE NPL WITH A HRS SCORE OF 42.92. A REMEDIAL ACTION MASTER PLAN (RAMP) WAS COMPLETED FOR THE SITE BY THE NUS CORPORATION IN FEBRUARY 1984. THIS REPORT INDICATED THE PRESENCE OF A NUMBER OF

ORGANIC COMPOUNDS AND METALS AT THE SITE. TABLE 3-1 LISTS THE SUBSTANCES FOUND AT THE SITE.

EPA BEGAN A SEARCH FOR PRPS AT THE PICKETTVILLE ROAD LANDFILL SITE IN 1985. AN ADMINISTRATIVE ORDER ON CONSENT WAS SIGNED IN JANUARY 1986 IN WHICH THE PRPS AGREED WITH EPA TO CONDUCT RI/FS WORK AT THE SITE. THE REVISED RI WAS COMPLETED IN JULY OF 1987. AN ADDITIONAL SITE CHARACTERIZATION REPORT TO ADDRESS DEFICIENCIES IN THE RI WAS COMPLETED IN NOVEMBER OF 1988. THE DRAFT FS REPORT WAS SUBMITTED TO EPA IN SEPTEMBER 1989. IN MARCH 1990 EPA DECIDED TO REVISE THE FS WHICH WAS COMPLETED IN JUNE 1990.

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#### 4.0 COMMUNITY RELATIONS

THE RI/FS AND THE PROPOSED PLAN FOR THE PICKETTVILLE ROAD LANDFILL SITE WERE RELEASED TO THE PUBLIC ON JUNE 28, 1990. THESE TWO DOCUMENTS WERE MADE AVAILABLE IN BOTH THE ADMINISTRATIVE RECORD AND AN INFORMATION REPOSITORY LOCATED AT HIGHLAND BRANCH OF THE JACKSONVILLE PUBLIC LIBRARY. THE NOTICE OF AVAILABILITY WAS PUBLISHED IN THE FLORIDA TIMES-UNION ON JUNE 24, 1990, AND THE PERIOD AVAILABLE FOR PUBLIC COMMENT WAS JUNE 28 THROUGH JULY 27, 1990. IN ADDITION TO PUBLIC COMMENT AND THE ACCESSIBILITY OF THE INFORMATION, A PUBLIC MEETING WAS HELD ON JULY 12, 1990 AT WHICH REPRESENTATIVES FROM EPA AND THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, DUVAL COUNTY WERE AVAILABLE TO ANSWER QUESTIONS AND ADDRESS COMMUNITY CONCERNS. A RESPONSE TO COMMENTS RECEIVED DURING THIS PERIOD AND AT THE MEETING IS INCLUDED IN THE RESPONSIVENESS SUMMARY, APPENDIX F OF THIS RECORD OF DECISION.

THIS DECISION DOCUMENT PRESENTS THE SELECTED REMEDIAL ACTION FOR THE PICKETTVILLE ROAD LANDFILL SITE, CHOSEN IN ACCORDANCE WITH CERCLA, AS AMENDED BY SARA AND, TO THE EXTENT PRACTICABLE, THE NATIONAL CONTINGENCY PLAN. THE DECISION FOR THIS SITE IS BASED ON THE ADMINISTRATIVE RECORD.

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#### 5.0 SUMMARY OF SITE CHARACTERISTICS

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##### 5.1 GEOMORPHOLOGY

THE PICKETTVILLE ROAD LANDFILL SITE IS LOCATED IN DUVAL COUNTY, FLORIDA, A LOWLAND AREA LACKING ANY SIGNIFICANT CHANGES IN RELIEF. THE TOPOGRAPHY OF NORTHEASTERN FLORIDA IS CONTROLLED BY A SERIES OF ANCIENT TERRACES, WHICH ARE ACTUALLY ABANDONED SHORELINES FORMED DURING THE PLEISTOCENE EPOCH AS THE SEA UNDERWENT SUCCESSIVE DROPS TO LOWER LEVELS.

ORIGINALLY USED AS A SAND BORROW PIT, THE EXCAVATIONS AT THE SITE WERE SUBSEQUENTLY FILLED WITH INDUSTRIAL AND MUNICIPAL WASTES. AS STATED PREVIOUSLY, INTERVIEWS WITH THE FORMER OWNER OF THE SITE INDICATE THAT

THE LANDFILL WASTE MAY HAVE BEEN DEPOSITED AS DEEP AS THE UNDERLYING ROCK AQUIFER (APPROXIMATELY 50 FEET BELOW THE LAND SURFACE) IN CERTAIN LOCATIONS. THE SITE WAS CLOSED IN 1977 AND IS CURRENTLY INACTIVE. THE TOPOGRAPHY OF THE SITE, PRIOR TO OPERATION OF THE SAND BORROW PITS AND THE PICKETTVILLE ROAD LANDFILL, CONSISTED OF A NORTHEASTWARD TRENDING RIDGE WHICH HAD AN ELEVATION OF APPROXIMATELY 10 FEET ABOVE MEAN SEA LEVEL (AMSL). THE NATURAL TOPOGRAPHY OF THE SITE HAS BEEN MODIFIED BY EXCAVATION OF THE RIDGE AND SUBSEQUENT FILLING OF THE DEPRESSION DURING THE OPERATION OF THE LANDFILL. THE WESTERN FLANK OF THE SITE SLOPED TOWARD SIXMILE CREEK LOCATED NORTH OF THE SITE. THE EASTERN FLANK OF THE RIDGE SLOPED TOWARD LITTLE SIXMILE CREEK, WHICH IS LOCATED ALONG THE SOUTHEASTERN BOUNDARY OF THE SITE.

CURRENT LANDFORMS WITHIN THE SITE REFLECT THE DISTURBANCES ASSOCIATED WITH FORMER EXCAVATION AND BACKFILLING ALTHOUGH SITE CLOSURE IN 1977 BROUGHT A RETURN TO A RELATIVELY UNIFORM SURFACE CONFIGURATION. SITE RELIEF RANGES FROM 0 FEET ABOVE MEAN SEA LEVEL ALONG LITTLE SIXMILE CREEK TO A HIGH OF APPROXIMATELY 15 FEET ABOVE AMSL IN THE INTERIOR OF THE LANDFILL, WITH THE STEEPEST SLOPES OCCURRING ALONG THE CREEK. THE SITE APPEARS TO BE CROWNED SOMEWHAT, WITH THE AVERAGE SLOPE RANGING FROM FOUR TO SEVEN PERCENT. SURFACE WATER DRAINAGE IS SOUTHEASTWARD TOWARD LITTLE SIXMILE CREEK. SOME ADDITIONAL GRADING HAS TAKEN PLACE IN THE NORTHEASTERN PORTION OF THE SITE TO CONTROL AN EROSION/LEACHATE PROBLEM. MOST OF THE SURFACE OF THE LANDFILL IS NOW COVERED WITH VEGETATION.

## 5.2 LOCAL GEOLOGY

THE PICKETTVILLE ROAD LANDFILL SITE IS UNDERLAIN BY UNDIFFERENTIATED DEPOSITS OF HOLOCENE TO PLEISTOCENE AGE WHICH CONSIST OF LOOSE, TAN TO YELLOW, MEDIUM TO FINE SAND THAT SOMETIMES CONTAINS SHELLS AND/OR MINOR AMOUNTS OF CLAY. FIGURE 5-1 IS A COMPOSITE GEOLOGIC COLUMN OF THE PRLS AREA AND THE RELATIONSHIPS OF THE AQUIFER SYSTEMS. IN THIS AREA, SAND IS STAINED RUSTY RED TO DARK BROWN FROM IRON OXIDE. GROUND-WATER OCCURS UNDER WATER TABLE CONDITIONS IN THE SURFICIAL SAND AQUIFER.

THE SURFICIAL SAND DEPOSITS ARE UNDERLAIN BY DEPOSITS OF PLIOCENE OR UPPER MIOCENE AGE, REPRESENTED BY TAN TO BUFF, FINE TO COARSE SAND AND GRAY TO LIGHT GRAY SANDY CLAY, CLAYEY SAND, AND SHELL BEDS. THE CLAY CONTAINS ABUNDANT MOLLUSK SHELLS. THE LOWER PART OF THE MIOCENE

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DEPOSITS, I.E., THE LIMESTONE UNIT, GENERALLY CONSIST OF A SOFT, FRIABLE, CAVERNOUS, SANDY LIMESTONE. THE LIMESTONE UNIT IS REFERRED TO AS THE "SHALLOW LIMESTONE AQUIFER" OR THE ROCK AQUIFER. THIS UNIT IS THE MAJOR WATER PRODUCING ZONE IN THE UPPER AQUIFER SYSTEM AND IS THE UNIT TAPPED BY MOST SHALLOW WATER WELLS IN DUVAL COUNTY. REGIONALLY, THE THICKNESS OF THE ENTIRE UNIT VARIES, RANGING FROM ABOUT TEN FEET IN THICKNESS IN SOUTHWEST DUVAL COUNTY TO MORE THAN 130 FEET IN WEST DUVAL COUNTY. THE ALTITUDE OF THE TOP OF THE LIMESTONE UNIT VARIES FROM ABOUT 25 FEET MSL IN WESTERN PART OF DUVAL COUNTY TO ABOUT 75 FEET BELOW MSL IN THE EASTERN PART OF THE COUNTY. AT THE PICKETTVILLE ROAD SITE, THE TOP OF THE SURFICIAL LIMESTONE WAS ENCOUNTERED AT DEPTHS RANGING FROM 40



TO 60 FEET BELOW SEA LEVEL. THE SURFICIAL SAND AQUIFER, OR WATER TABLE, AND THE ROCK AQUIFER TOGETHER COMPRISE THE UPPER AQUIFER SYSTEM.

UNDERLYING THE ROCK AQUIFER IS THE LOWER MIOCENE HAWTHORN FORMATION WHICH CONSISTS OF SANDY CLAY, INTERBEDDED WITH DISCONTINUOUS LENSES OF PHOSPHATIC SAND, SANDY LIMESTONE, AND DOLOMITE. REGIONALLY, THE THICKNESS OF THE HAWTHORN FORMATION RANGES FROM 250 FEET IN SOUTHERN DUVAL COUNTY TO 500 FEET IN THE NORTHERN PART OF THE COUNTY. THIS FORMATION IS OF RELATIVELY LOW PERMEABILITY AND CONFINES THE GROUND WATER IN THE UNDERLYING EOCENE AGE LIMESTONE.

THE PRINCIPAL ARTESIAN AQUIFER IN THE AREA IS THE FLORIDAN AQUIFER. THE FLORIDAN AQUIFER IS THE PRINCIPAL SOURCE OF FRESH WATER IN NORTHEASTERN FLORIDA. IT OCCURS IN LIMESTONES OF THE EOCENE AGE. THESE FORMATIONS, IN DESCENDING ORDER, ARE THE OCALA GROUP LIMESTONES, AVON PARK LIMESTONE, LAKE CITY LIMESTONE, THE OLDSMAR LIMESTONE, AND A FEW DISCONTINUOUS THIN AQUIFERS IN THE HAWTHORN FORMATION THAT ARE HYDRAULICALLY CONNECTED TO THE REST OF THE AQUIFER SYSTEM. THE FLORIDAN AQUIFER IS SEPARATED FROM THE UPPER AQUIFER SYSTEM BY THE EXTENSIVE AQUICLUDE IN THE HAWTHORN FORMATION AND IN THE PLIOCENE OR UPPER MIOCENE DEPOSITS. THE WATER BEARING-ZONES WITHIN THE FLORIDAN AQUIFER CONSIST OF SOFT, POROUS LIMESTONE AND POROUS DOLOMITE BEDS. THIS UNIT IS A HOMOGENEOUS SEQUENCE OF MARINE CARBONATES, WHICH UNDERLIE THE HAWTHORN. MOST WELLS IN THE FLORIDAN AQUIFER ARE COMPLETED TO DEPTHS AS GREAT AS 1,000 FEET BELOW LAND SURFACE.

THE LANDFILL IS COVERED BY FINE, SANDY BROWN MATERIAL. NATURAL SOIL IN THE AREA CONSISTS OF FINE SAND OF THE ALBANY SOIL ASSOCIATION. SLOPES IN THESE SOILS ARE FROM ZERO TO FIVE PERCENT. GENERALLY THESE ARE WELL-DRAINED SOILS.

### 5.3 SURFACE WATERS

THERE ARE TWO PRIMARY SURFACE WATER BODIES IN THIS AREA, LITTLE SIXMILE CREEK AND SIXMILE CREEK. SURFACE RUNOFF FROM THE PICKETTVILLE ROAD LANDFILL SITE IS CARRIED PRIMARILY BY SHEET FLOW TO THE SOUTHEAST AND INTO LITTLE SIXMILE CREEK. LITTLE SIXMILE CREEK IS APPROXIMATELY 10 TO 50 FEET WIDE AND 0.5 TO 2 FEET DEEP. THIS CREEK FLOWS TO THE NORTHEAST AT A VERY SHALLOW GRADIENT TO ITS CONFLUENCE WITH SIXMILE CREEK, LOCATED

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APPROXIMATELY 700 FEET DOWNSTREAM OF PICKETTVILLE ROAD. SIXMILE CREEK IS SIGNIFICANT BECAUSE IT DRAINS AREAS TO THE NORTH OF THE SITE WHICH ARE ALSO SUBJECT TO LANDFILLING OPERATIONS.

INFORMATION PERTAINING TO THE FLOW RATE OF LITTLE SIXMILE CREEK WAS OBTAINED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS). THIS INFORMATION INDICATED THAT THE MOST RECENT FLOW RATE DATA OBTAINED FROM THE CREEK WAS 3.82 CUBIC FEET PER SECOND (1,714 GALLONS PER MINUTE), RECORDED ON MAY 5, 1986. THE LOWEST FLOW RATE FOR LITTLE SIXMILE CREEK PROVIDED BY THE USGS WAS 2.66 CUBIC FEET PER SECOND (1,194 GALLONS PER MINUTE) MEASURED ON APRIL 13, 1965. BASED ON THE BEST AVAILABLE

INFORMATION FROM USGS STUDIES IN DUVAL COUNTY, BASE FLOW (GROUNDWATER DISCHARGE) MAKES UP APPROXIMATELY 30 TO 60 PERCENT OF THE TOTAL STREAM FLOW.

SIXMILE CREEK IS LOCATED APPROXIMATELY 1000 FEET NORTH OF THE SITE. THE ORIGIN OF SIXMILE CREEK IS WEST OF THE SITE. SIXMILE CREEK FLOWS FROM WEST TO EAST AND EVENTUALLY DISCHARGES INTO THE RIBAUT RIVER WHICH IS A MAIN TRIBUTARY OF THE ST. JOHN RIVER. THE ST. JOHN RIVER IS ACTUALLY A TIDAL BASIN DRAINING THE ENTIRE JACKSONVILLE AREA INTO THE ATLANTIC OCEAN. SIXMILE CREEK IS APPROXIMATELY 50 TO 80 FEET WIDE AND 5 TO 6 FEET DEEP. THE RIBAUT RIVER IS ABOUT 50 TO 100 FEET WIDE AND 11 FEET DEEP. BOTH SIXMILE CREEK AND THE RIBAUT RIVER HAVE MINOR TIDAL INFLUENCE.

FOUR SURFACE WATER AND STREAM BOTTOM SEDIMENT SAMPLES WERE COLLECTED ALONG LITTLE SIXMILE CREEK DURING THE REMEDIAL INVESTIGATION PHASE. APPENDIX A CONTAINS THE SAMPLE LOCATION MAPS AND ANALYTICAL RESULTS FOR THE SURFACE WATER. SAMPLE SW-1 WAS AT THE POINT WHERE LITTLE SIXMILE CREEK ENTERS THE PRLS; SW-2 AND SW-3 WERE AT TWO LOCATIONS WITHIN THE PRLS; AND SW-4 WAS AT THE POINT WHERE LITTLE SIXMILE CREEK LEAVES THE PRLS. THESE SURFACE WATER SAMPLES WERE ANALYZED FOR HAZARDOUS SUBSTANCES LIST (HSL) CONSTITUENTS (VOLATILES, SEMI-VOLATILES, PESTICIDES, METALS, AND CYANIDE), CARBONATE, BICARBONATE, SULFATE, AND CHLORIDE. IN ADDITION, A MASS SPECTRAL LIBRARY SEARCH WAS PERFORMED ON EACH SAMPLE TO IDENTIFY ADDITIONAL COMPOUNDS, REFERRED TO AS TENTATIVELY IDENTIFIED COMPOUNDS (TICS).

METHYLENE CHLORIDE WAS THE ONLY HSL VOLATILE REPORTED IN CONCENTRATIONS ABOVE DETECTION LIMITS, AND ONLY IN THE WATER SAMPLE FROM SW-1. TWO HSL SEMI-VOLATILE COMPOUNDS (DI-N-BUTYL PHTHALATE AND BIS (2-ETHYLHEXYL) PHTHALATE) WERE ABOVE DETECTION LIMITS IN THREE SURFACE WATER SAMPLES (SW-1, SW-2, AND SW-3). HOWEVER, NO HSL PESTICIDES WERE IDENTIFIED ABOVE DETECTION LIMITS IN THESE SAMPLES. SURFACE WATER SAMPLE SW-2 CONTAINED DETECTABLE LEVELS OF TOTAL LEAD AND TOTAL CYANIDE (11 PPB AND 140 PPB RESPECTIVELY).

#### 5.4 SITE HYDROGEOLOGY

SITE SPECIFIC HYDROGEOLOGIC DATA AND INTERPRETATIONS WERE DEVELOPED IN

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THE REMEDIAL INVESTIGATION AND THE ADDITIONAL SITE CHARACTERIZATION REPORT.

TWO AQUIFERS OCCUR BENEATH THE SITE. GROUNDWATER FLOW IN THE UNCONFINED SURFACE AQUIFER IS CONTROLLED BY TOPOGRAPHY AND FLOWS NORTHEAST TO LITTLE SIXMILE CREEK AT A RATE OF 3.3 M/YEAR. GROUNDWATER IN THE DEEPER (ROCK AQUIFER) FLOWS EAST-NORTHEAST AT 10.6 M/YEAR. UNDER NORMAL CLIMATIC CONDITIONS, ALL GROUNDWATER FROM THE VICINITY OF PRLS DISCHARGES INTO LITTLE SIXMILE CREEK AND SIXMILE CREEK.

LITHOLOGIC DESCRIPTIONS OF SOIL BORINGS WERE USED TO PREPARE THE SITE

SPECIFIC GEOLOGIC CROSS-SECTIONS. AN AVERAGE OF 40 TO 50 FEET OF SILICICLASTIC SEDIMENTS (THE SURFICIAL AQUIFER) OCCUR ABOVE A LIMESTONE UNIT (THE ROCK AQUIFER). THE ROCK AQUIFER EXTENDS TO THE TOP OF THE HAWTHORN FORMATION AT DEPTHS OF APPROXIMATELY 100 FEET. ALTHOUGH THE SURFICIAL AQUIFER AND THE ROCK AQUIFER ARE OF A DIFFERENT LITHOLOGY, THE TWO AQUIFERS ARE HYDRAULICALLY INTERCONNECTED AND ARE REFERRED TO AS THE UPPER AQUIFER SYSTEM.

THE SURFICIAL CLASTIC SEDIMENTS TYPICALLY CONSIST OF 10 TO 15 FEET OF SILTY SAND AND CLAY, UP TO 7 FEET OF DISCONTINUOUS GRAY SILTY CLAY, 10 TO 20 FEET OF FINE- TO COARSE-GRAINED SAND, AND UP TO 20 FEET OF GRAY CLAY. FOSSILIFEROUS CLAYEY LIMESTONE UNDERLIES THE SURFICIAL SEDIMENTS AND OCCURS DOWNWARD TO THE TOP OF THE HAWTHORN FORMATION.

THE HYDRAULIC CONDUCTIVITY OF THE UPPERMOST SILTY SAND AND CLAY WAS DETERMINED BY SLUG TO RANGE FROM  $3.7 \times (10^{-6})$  FT/SEC (0.3 FT/DAY) TO  $1.49 \times (10^{-4})$  FT/SEC (12.8 FT/DAY). CLAY RICH SEDIMENTS IN THIS UNIT MAY HAVE LOWER CONDUCTIVITY. THE HYDRAULIC CONDUCTIVITY OF THE SILTY CLAY UNIT WAS DETERMINED TO BE  $3.3 \times (10^{-9})$  FT/SEC ( $2.5 \times 10$  FT/DAY) BY LABORATORY MEASUREMENTS OF A SAMPLE OBTAINED FROM A DEPTH OF 26 TO 28 FEET. THE HYDRAULIC CONDUCTIVITY OF THE FINE- TO COURSE-GRAINED SAND WAS DETERMINED BY SLUG TESTS TO BE  $1.5 \times 10$  FT/SEC (12.9 FT/DAY). THE HYDRAULIC CONDUCTIVITY OF THE GRAY CLAY UNIT AT THE BASE OF THE SURFICIAL AQUIFER WAS DETERMINED TO BE  $2.6 \times (10^{-10})$  FT/SEC ( $2.1 \times (10^{-5})$  FT/DAY) BY LABORATORY MEASUREMENTS OBTAINED FROM A DEPTH OF 58 FEET. THE HYDRAULIC CONDUCTIVITY OF THE LIMESTONE (ROCK AQUIFER) WAS DETERMINED BY SLUG TESTS TO RANGE FROM  $3.76 \times (10^{-5})$  FT/SEC (3.25 FT/DAY) TO  $1.08 \times (10^{-3})$  FT/SEC (93.3 FT/DAY).

## 5.5 GROUNDWATER

GROUNDWATER WAS SAMPLED FROM 21 LOCATIONS, INCLUDING TWO REFERENCE STATIONS LOCATED SOUTHWEST OF THE SITE BOUNDARY. APPENDIX B CONTAINS THE SAMPLE LOCATION MAPS AND ANALYTICAL RESULTS FOR THE GROUNDWATER. ALL THE SAMPLES WERE ANALYZED FOR VOLATILE ORGANIC COMPOUNDS, SEMI-VOLATILE ORGANIC COMPOUNDS, PCBS, PESTICIDES, AND INORGANIC SUBSTANCES. GROUNDWATER SAMPLED FROM MONITORING WELLS ON THE EAST SIDE OF LITTLE SIXMILE CREEK GENERALLY SHOWED NO CONTAMINATION. DEEP GROUNDWATER GENERALLY HAD FEWER TRACE ELEMENTS AND LOWER CONCENTRATIONS

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THAN SHALLOW GROUNDWATER.

THE GROUNDWATER QUALITY DATA FOR THE PRLS INDICATES THAT SPORADIC CONTAMINATION IS EMANATING FROM THE LANDFILL. THIS CAN BE EXPECTED WHEN A HETEROGENEOUS SOURCE IS INVOLVED. HOWEVER, MAXIMUM CONTAMINANT LEVELS (MCLS) IN DRINKING WATER ARE VIOLATED FOR BENZENE AND VINYL CHLORIDE IN OFF-SITE MONITOR WELL SMW-4. THE GROUND WATER IN THE SURFICIAL AQUIFER HAS BEEN CLASSIFIED AS CLASS IIB, A POTENTIAL SOURCE OF DRINKING WATER, UTILIZING THE EPA GROUNDWATER CLASSIFICATION GUIDELINES.

## 5.6 SITE ECOLOGY

THE VEGETATIVE COMMUNITY DOMINATING THE SITE CONSISTS OF A DENSE GROUND COVER WITH A WIDELY SCATTERED AND PATCHY CANOPY AND SUBCANOPY. CANOPY AND SUBCANOPY SPECIES ARE DOMINATED BY CHINESE TALLOW, MIMOSA, CAROLINA LAUREL CHERRY AND BLACK CHERRY, WITH OCCASIONAL LONG LEAF PINE. GROUND COVER IS DOMINATED BY GOLDENROD, BROOMSEDGE, BLACKBERRY, VERBENA BRASILIENSE, CABBAGE PALM AND DOG FENNEL. CONSIDERABLE SOOTY MOLD IS ASSOCIATED WITH THE VERBENA BRASILIENSE. THE SITE IS BORDERED TO THE WEST BY PINE FLATWOODS AND A GROUND COVER OF GALLBERRY AND BLACKBERRY.

BASED UPON SIGNS SUCH AS NUMEROUS GAME TRAILS, SCAT, AND TRACKS, THE WILDLIFE IN THE AREA APPARENTLY CONSISTS OF SQUIRREL, RABBIT, OPPOSSUM AND RACON. ONE HAWK OF UNDETERMINED SPECIES WAS OBSERVED CIRCLING THE SITE.

THE PRIMARY CHANNEL OF LITTLE SIXMILE CREEK APPEARED CLEAR AND RELATIVELY UNOBSTRUCTED. THE SECONDARY CHANNEL ON THE FLOODPLAIN EXHIBITED CONSIDERABLE AMOUNTS OF BROWNISH ALGAE AS WELL AS A MALODOROUS STENCH.

#### 5.7 SURFACE SOIL

SURFACE AREAS INDICATIVE OF CONTAMINATION WERE SAMPLED AT THE PRLS IN JUNE 1986. APPENDIX C CONTAINS THE SAMPLE LOCATION MAPS AND ANALYTICAL RESULTS FOR THE SURFACE SOIL. EIGHT SOIL SAMPLES WERE COLLECTED FROM THE UPPER SIX INCHES OF SOIL. SAMPLE SS-8 WAS THE BACKGROUND SAMPLE LOCATED NEAR THE UPGRADIENT PAIR OF WELLS SMW-1 AND DMW-1 (BACKGROUND ANALYTICAL RESULTS ARE REPORTED IN APPENDIX E). SAMPLES SS-1 THROUGH SS-7 WERE TAKEN FROM AREAS OF OBVIOUS OR SUSPECTED CONTAMINATION. THE EIGHT SOIL SAMPLES WERE ANALYZED FOR HSL CONSTITUENTS AND PERCENT SOLIDS. TWENTY THREE METALS, FIVE BASE-NEUTRAL EXTRACTABLES, AND PCBS WERE DETECTED IN SURFICIAL SOIL SAMPLES. PCB-1260 WAS REPORTED AT FOUR OF THE EIGHT SAMPLING LOCATIONS. ALL METALS EXCEPT POTASSIUM EXCEEDED REGION SPECIFIC BACKGROUND LEVELS FOR SURFICIAL SOIL.

COMPOSITE SAMPLES OF THE PRLS WASTE MATERIAL WERE COLLECTED DURING THE INSTALLATION OF THE THREE WASTE CHARACTERIZATION WELLS. THE SAMPLES WERE ANALYZED FOR HSL CONSTITUENTS. THE ANALYTICAL RESULTS DEMONSTRATED THE PRESENCE OF 13 METALS, 10 VOLATILE ORGANIC COMPOUNDS, 13

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BASE-NEUTRAL EXTRACTABLES ORGANIC COMPOUNDS, 2 PESTICIDES, AND DIBENZOFURAN IN THE WASTE SAMPLES. ALL OF THE METALS EXCEPT ALUMINUM AND MANGANESE EXCEED REGION-SPECIFIC BACKGROUND LEVELS.

#### 5.8 SEDIMENT AND SURFACE WATER

FOUR SURFACE WATER SAMPLES OBTAINED FROM LITTLE SIXMILE CREEK AND THE REALCO DEMOLITION IMPOUNDMENT WERE COLLECTED AND ANALYZED FOR PRLS INDICATOR CONSTITUENTS (PIC). TWO SAMPLES WERE COLLECTED DOWNSTREAM AND ONE UPSTREAM OF THE LANDFILL. THE SURFACE WATER SAMPLING LOCATIONS WERE CHOSEN TO FURTHER DEFINE THE LOCAL GROUNDWATER/SURFACE WATER FLOW SYSTEM

AND TO CHARACTERIZE THE WATER QUALITY OF ADJACENT SURFACE WATER BODIES. THESE LOCATIONS DOCUMENT THAT GROUND WATER FLOW IN THE UPPER AQUIFER SYSTEM IS CONSTRAINED TO DISCHARGE TO LITTLE SIXMILE CREEK, SIXMILE CREEK, AND LOCAL PONDS AND IMPOUNDMENTS (SEE APPENDIX A).

TWO CONSTITUENTS THAT WERE DETECTED IN THE SURFACE WATER SAMPLES ARE METHYLENE CHLORIDE (MAXIMUM 9 PPB) AND BIS(2-ETHYLHEXYL) PHTHALATE (MAXIMUM 20 PPB). THE BACKGROUND SAMPLE COLLECTED UPSTREAM FROM THE PRLS ALSO REVEALED THE PRESENCE OF METHYLENE CHLORIDE AT 9 PPB AND BIS(2-ETHYLHEXYL) PHTHALATE AT 32 PPB (SEE APPENDIX E).

STREAM BOTTOM SEDIMENT SAMPLES WERE COLLECTED FROM LITTLE SIXMILE CREEK AND THE REALCO DEMOLITION IMPOUNDMENT. SAMPLING LOCATIONS AND ANALYTICAL RESULTS ARE FOUND IN APPENDIX D. FIVE BOTTOM SEDIMENT SAMPLES FROM THE LITTLE SIXMILE CREEK WERE COLLECTED DURING THE ADDITIONAL SITE CHARACTERIZATION (ASC); ONE SAMPLE WAS COLLECTED FROM THE REALCO DEMOLITION IMPOUNDMENT. ANALYSIS FOR PIC CONSTITUENTS WAS PERFORMED ON THE SAMPLES. RESULTS INDICATED THE PRESENCE OF ACETONE (MAXIMUM 200 PPB), CARBON DISULFIDE (MAXIMUM 40 PPB), METHYLENE CHLORIDE (MAXIMUM 20 PPB), 2-BUTANONE (MAXIMUM 36 PPB), AND BIS(2-ETHYLHEXYL)PHTHALATE (MAXIMUM 11,974 PPB). THE FOLLOWING CONSTITUENTS EXCEEDED BACKGROUND LEVELS: ARSENIC, BARIUM, CADMIUM, CHROMIUM, LEAD, MERCURY, SELENIUM, ACETONE, 2-BUTANONE, CARBON DISULFIDE AND BIS(2-ETHYLHEXYL)PHTHALATE.

#SSR

## 6.0 SUMMARY OF SITE RISKS

### 6.1 CONTAMINANTS OF CONCERN

CONTAMINANTS HAVE BEEN IDENTIFIED AT THE SITE IN BOTH THE SURFICIAL AND ROCK AQUIFERS, SURFICIAL SOIL, BURIED WASTE, SEDIMENTS AND AIR. IN ADDITION, THERE IS THE POTENTIAL FOR FISH IN THE SURFACE WATER BODIES TO BE CONTAMINATED WITH SITE RELATED CHEMICALS. TABLE 6-1 CONTAINS THE CONTAMINANTS OF CONCERN AND THE EXPOSURE POINT CONCENTRATIONS USED FOR THE RISK CALCULATIONS. ALTHOUGH DIRECT CONTACT WITH BURIED WASTE MATERIAL IS NOT EXPECTED TO OCCUR, IT IS A POTENTIAL SOURCE OF VOLATILE ORGANIC COMPOUNDS (VOCs) IN THE ONSITE AIR. AIR EXPOSURE CONCENTRATIONS

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FOR VOCs WERE MODELED FROM THE BURIED WASTE DATA. FISH TISSUE CONCENTRATIONS WERE ESTIMATED BASED ON SURFACE WATER AND SEDIMENT DATA AND THE DATA FROM THE TWO MONITORING WELLS (SMW-4 AND SMW-10) LOCATED NEAR (UPGRADIENT) LITTLE SIXMILE CREEK.

### 6.2 EXPOSURE ASSESSMENT

THE EXPOSURE ASSESSMENT EVALUATES THE POTENTIAL FOR EXPOSURE TO MEDIA IN WHICH CHEMICALS OF CONCERN ARE IDENTIFIED. A COMPLETE EXPOSURE PATHWAY CONSISTS OF A SOURCE OF CHEMICAL RELEASE, A TRANSPORT MECHANISM TO AN EXPOSURE POINT, AND A POTENTIAL POPULATION IN CONTACT WITH THE EXPOSURE

POINT. THE POTENTIALLY COMPLETE EXPOSURE PATHWAYS AT THE PRLS ARE INGESTION OF GROUNDWATER FROM THE SURFICIAL OR ROCK AQUIFERS, DIRECT CONTACT WITH SURFACE WATER, SEDIMENTS AND SURFICIAL SOILS, INHALATION FROM BOTH THE SURFICIAL SOIL AND THE BURIED WASTE AND INGESTION OF CONTAMINATED FISH TISSUE. THE EXPOSURE POINTS ARE SUMMARIZED IN TABLE 6-2.

TWENTY-FOUR CONSTITUENTS WERE IDENTIFIED IN THE SURFICIAL AQUIFER AND EIGHTEEN WERE IDENTIFIED IN THE ROCK AQUIFER. BOTH OF THESE AQUIFERS DISCHARGE TO NEARBY SURFACE WATER. THE TWO PRIMARY RECEIVING WATERS ARE SIXMILE CREEK TO THE NORTH AND LITTLE SIXMILE CREEK TO THE EAST. TWO OFFSITE PONDS ARE ALSO GROUNDWATER DISCHARGE POINTS.

ALTHOUGH THERE IS NO KNOWN CURRENT CONSUMPTION OF GROUNDWATER IN THE SURFICIAL AQUIFER, IT IS CLASSIFIED AS A POTENTIALLY POTABLE DRINKING WATER AQUIFIER (G2) BY THE STATE OF FLORIDA.

APPROXIMATELY FOUR HOMES LOCATED BETWEEN THE LANDFILL AND THE DISCHARGE POINT MAY USE WELLS WHICH DRAW FROM THE ROCK AQUIFER. PRIVATE WELLS ARE ALSO USED ON THE FAR SIDE OF LITTLE SIXMILE CREEK, BUT THEY ARE NOT THOUGHT TO BE AFFECTED BY THE PRLS, SINCE GROUNDWATER DISCHARGES TO THE CREEK.

PEOPLE FISH IN SIXMILE CREEK AND IN THE RIBAUT RIVER. EDIBLE CRABS HAVE BEEN SEEN IN LITTLE SIXMILE CREEK. FISH CAN BIOCONCENTRATE CONSTITUENTS TO WHICH THEY ARE EXPOSED. BECAUSE THE GROUNDWATER DISCHARGES INTO THE SURFACE WATER, THE FISH INGESTION PATHWAY IS CONSIDERED TO BE A POTENTIAL EXPOSURE PATHWAY. IN ADDITION, SURFACE WATER AND SEDIMENTS ARE ACCESSIBLE AND WILL BE EVALUATED AS EXPOSURE PATHWAYS.

SINCE THE PRLS IS NOT SECURE AND THERE IS EVIDENCE OF HUMAN ACTIVITY AT THE SITE, THE POTENTIAL ALSO EXISTS FOR DIRECT CONTACT WITH SURFICIAL SOIL AND INHALATION OF CHEMICALS FROM THE SOIL AND BURIED LANDFILL WASTES.

THE EXPOSURE ASSUMPTIONS FOR THE GROUNDWATER INGESTION PATHWAY ARE FOR THE CONSUMPTION OF TWO LITERS OF WATER FROM THE CONTAMINATED AQUIFER EVERY DAY FOR A LIFETIME. THE EXPOSURE SCENARIO FOR EXPOSURE TO

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SURFICIAL SOIL ASSUMES THAT CHILDREN FROM THE AGES OF 4 THROUGH 18 VISIT THE SITE FOR 2 HOURS A DAY FOR 150 DAYS PER YEAR. THE EXPOSURE ROUTES FOR THE CONTAMINANTS OF CONCERN ARE ABSORPTION THROUGH THE SKIN, INGESTION OF SOIL AND INHALATION OF DUST. EXPOSURE POINT CONCENTRATIONS FOR THE INHALATION OF VOLATILES WAS MODELED BASED ON THE CONCENTRATION OF BURIED WASTES IN THE LANDFILL AREA. THE SAME EXPOSURE SCENARIO WAS USED FOR THIS PATHWAY AS FOR THE SURFACE SOIL PATHWAY.

THE EXPOSURE SCENARIO FOR EXPOSURE TO SURFACE WATER AND SEDIMENTS CONSIDERS DERMAL ABSORPTION OF CHEMICALS FROM THE SURFACE WATER AND ACCIDENTAL INGESTION OF SURFACE WATER AND SEDIMENTS. CHILDREN ARE

ASSUMED TO PLAY IN THE CREEK WITH THE SAME FREQUENCY AS THEY VISIT THE PRLS.

MEAN CONCENTRATIONS OF CHEMICALS OF CONCERN IN THE SURFACE WATER OR IN THE TWO MONITORING WELLS LOCATED NEAR LITTLE SIXMILE CREEK WERE USED TO ESTIMATE POTENTIAL FISH TISSUE CONCENTRATIONS. THE FISH INGESTION SCENARIO ASSUMES A CONSUMPTION RATE OF 6.5G OF FISH PER DAY OVER A 70 YEAR PERIOD.

### 6.3 TOXICITY ASSESSMENT

REFERENCE DOSES (RFDS) HAVE BEEN DEVELOPED BY EPA FOR INDICATING THE POTENTIAL FOR ADVERSE HEALTH EFFECTS FROM EXPOSURE TO CHEMICALS EXHIBITING NONCARCINOGENIC EFFECTS. RFDS, WHICH ARE EXPRESSED IN UNITS OF MG/KG-DAY, ARE ESTIMATES OF LIFETIME DAILY EXPOSURE LEVELS FOR HUMANS, INCLUDING SENSITIVE INDIVIDUALS. ESTIMATED INTAKES OF CHEMICALS FROM ENVIRONMENTAL MEDIA (E.G., THE AMOUNT OF A CHEMICAL INGESTED FROM CONTAMINATED DRINKING WATER) CAN BE COMPARED TO THE RFD. RFDS ARE DERIVED FROM HUMAN EPIDEMIOLOGICAL STUDIES OR ANIMAL STUDIES TO WHICH UNCERTAINTY FACTORS HAVE BEEN APPLIED (E.G., TO ACCOUNT FOR THE USE OF ANIMAL DATA TO PREDICT EFFECTS ON HUMANS). THESE UNCERTAINTY FACTORS HELP ENSURE THAT THE RFDS WILL NOT UNDERESTIMATE THE POTENTIAL FOR ADVERSE NONCARCINOGENIC EFFECTS TO OCCUR. RFDS FOR THE SITE CONTAMINANTS OF CONCERN ARE IN TABLE 6-3.

CANCER POTENCY FACTORS (CPFS) HAVE BEEN DEVELOPED BY EPA'S CARCINOGENIC ASSESSMENT GROUP FOR ESTIMATING EXCESS LIFETIME CANCER RISKS ASSOCIATED WITH EXPOSURE TO POTENTIALLY CARCINOGENIC CHEMICALS. CPFS, WHICH ARE EXPRESSED IN UNITS OF (MG/KG-DAY)<sup>-1</sup>, ARE MULTIPLIED BY THE ESTIMATED INTAKE OF A POTENTIAL CARCINOGEN, IN MG/KG-DAY, TO PROVIDE AN UPPER-BOUND ESTIMATE OF THE EXCESS LIFETIME CANCER RISK ASSOCIATED WITH EXPOSURE AT THAT INTAKE LEVEL. THE TERM "UPPER BOUND" REFLECTS THE CONSERVATIVE ESTIMATE OF THE RISKS CALCULATED FROM THE CPF. USE OF THIS APPROACH MAKES UNDERESTIMATION OF THE ACTUAL CANCER RISK HIGHLY UNLIKELY. CANCER POTENCY FACTORS ARE DERIVED FROM THE RESULTS OF HUMAN EPIDEMIOLOGICAL STUDIES OR CHRONIC ANIMAL BIOASSAYS TO WHICH ANIMAL-TO-HUMAN EXTRAPOLATION AND UNCERTAINTY FACTORS HAVE BEEN APPLIED. CPFS FOR THE SITE CONTAMINANTS OF CONCERN ARE IN TABLE 6-3.

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### 6.4 RISK CHARACTERIZATION

THE RISK CHARACTERIZATION STEP OF THE BASELINE RISK ASSESSMENT PROCESS INTEGRATES THE TOXICITY AND EXPOSURE ASSESSMENTS INTO QUANTITATIVE AND QUALITATIVE EXPRESSIONS OF RISK. THE OUTPUT OF THIS PROCESS IS A CHARACTERIZATION OF THE SITE-RELATED POTENTIAL NONCARCINOGENIC AND CARCINOGENIC HEALTH EFFECTS.

POTENTIAL CONCERN FOR NONCARCINOGENIC EFFECTS OF A SINGLE CONTAMINANT IN A SINGLE MEDIUM IS EXPRESSED AS THE HAZARD QUOTIENT (HQ) (OR THE RATIO OF THE ESTIMATED INTAKE DERIVED FROM THE CONTAMINANT CONCENTRATION IN A

GIVEN MEDIUM TO THE CONTAMINANT'S REFERENCE DOSE). BY ADDING THE HQS FOR ALL CONTAMINANTS WITHIN A MEDIUM OR ACROSS ALL MEDIA TO WHICH A GIVEN POPULATION MAY REASONABLY BE EXPOSED, THE HAZARD INDEX (HI) CAN BE GENERATED. THE HI PROVIDES A USEFUL REFERENCE POINT FOR GAUGING THE POTENTIAL SIGNIFICANCE OF MULTIPLE CONTAMINANT EXPOSURES WITHIN A SINGLE MEDIUM OR ACROSS MEDIA. THE HI INFORMATION FOR THE SITE CONTAMINANTS OF CONCERN IS SUMMARIZED IN TABLE 6-4. EXCESS LIFETIME CANCER RISKS ARE DETERMINED BY MULTIPLYING THE INTAKE LEVEL WITH THE CANCER POTENCY FACTOR. THESE RISKS ARE PROBABILITIES THAT ARE GENERALLY EXPRESSED IN SCIENTIFIC NOTATION (E.G.,  $1 \times (10^{-6})$  OR  $1E-6$ ). AN EXCESS LIFETIME CANCER RISK OF  $1 \times (10^{-6})$  INDICATES THAT, AS A PLAUSIBLE UPPER BOUND, AN INDIVIDUAL HAS A ONE IN ONE MILLION CHANCE OF DEVELOPING CANCER AS A RESULT OF SITE-RELATED EXPOSURE TO A CARCINOGEN OVER A 70-YEAR LIFETIME UNDER THE SPECIFIC EXPOSURE CONDITIONS AT A SITE. THE EXCESS CANCER RISK LEVELS ASSOCIATED WITH THE SITE CONTAMINANTS AND EXPOSURE PATHWAYS ARE CONTAINED IN TABLE 6-5.

THE AGENCY CONSIDERS INDIVIDUAL EXCESS CANCER RISKS IN THE RANGE OF  $(10^{-4})$  TO  $(10^{-6})$  AS PROTECTIVE; HOWEVER, THE MIDPOINT RISK  $(10^{-6})$  IS GENERALLY USED AS THE POINT OF DEPARTURE FOR SETTING CLEANUP GOALS AT SUPERFUND SITES.

THE EXCESS LIFETIME CANCER RISK FOR ALL CARCINOGENIC INDICATOR CHEMICALS IN THE SURFICIAL AQUIFER IS  $1.5 \times (10^{-3})$  WHICH EXCEEDS THE TARGET RANGE OF  $(10^{-4})$  TO  $(10^{-6})$ . ARSENIC, WHICH IS KNOWN TO CAUSE CANCER IN HUMANS, REPRESENTS MOST OF THE CANCER RISK. THE EXCESS LIFETIME CANCER RISK ASSOCIATED WITH BENZENE, WHICH IS ALSO KNOWN TO CAUSE CANCER IN HUMANS, IS  $1.6 \times (10^{-5})$ . THE EXCESS CANCER RISK FOR VINYL CHLORIDE ( $1.3 \times (10^{-4})$ ) EXCEEDS THE TARGET RANGE.

THE TOTAL HAZARD INDEX FOR THE SURFICIAL AQUIFER IS 1.8, WHICH EXCEEDS THE TARGET LEVEL OF UNITY. ARSENIC AND BENZENE ARE THE PRIMARY SOURCES OF THIS RISK.

FOUR HOUSEHOLDS TO THE NORTH OF THE PRLS ARE BELIEVED TO USE GROUNDWATER FROM AFFECTED PORTIONS OF THE ROCK AQUIFER FOR THEIR DOMESTIC WATER SUPPLY. THE QUALITY OF THE ROCK AQUIFER IS ACCEPTABLE FOR CONSUMPTION (I.E NONE OF THE CONTAMINANTS EXCEED MCLS). THERE ARE NO DETECTABLE LEVELS OF CARCINOGENIC CHEMICALS IN THE ROCK AQUIFER. THE TOTAL HAZARD

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INDEX FOR THE ROCK AQUIFER IS 0.59. BARIUM AND NICKEL REPRESENT THE GREATEST NON-CANCER RISKS, BUT THEY ARE BELOW UNITY.

THE CUMULATIVE RISK ASSOCIATED WITH EXPOSURE TO CONTAMINATED SURFICIAL SOIL IS  $7.9 \times (10^{-6})$ , WHICH IS WITHIN THE TARGET RANGE BUT EXCEEDS THE  $(10^{-6})$  POINT OF DEPARTURE LEVEL. MOST OF THE RISK RESULTS FROM THE PRESENCE OF ARSENIC. THE TOTAL HAZARD INDEX IS 0.56.

SURFACE WATER AND SEDIMENTS IN SEVERAL BODIES OF WATER (A PRIVATE POND, THE REALCO DEMOLITION IMPOUNDMENT, LITTLE SIXMILE CREEK, AND SIXMILE CREEK) MAY BE AFFECTED BY SURFACE-WATER RUNOFF FROM THE PRLS AND/OR



DISCHARGE OF AFFECTED GROUNDWATER FROM BOTH THE SURFICIAL AND ROCK AQUIFERS. SAMPLES FROM LITTLE SIXMILE CREEK AND THE REALCO IMPOUNDMENT WERE USED TO REPRESENT AFFECTED SURFACE WATER AND SEDIMENTS. THE TOTAL EXCESS LIFETIME CANCER RISK ( $5.2 \times (10^{-8})$ ) IS BELOW THE TARGET RANGE.

THE TOTAL HAZARD INDEX IS  $1.7 \times (10^{-3})$ , WHICH IS WELL BELOW THE TARGET LEVEL OF 1.

THE POTENTIAL FUTURE EXCESS LIFETIME CANCER RISK FOR FISH INGESTION IS  $2.4 \times (10^{-6})$  WHICH EXCEEDS THE  $(10^{-6})$  POINT OF DEPARTURE BUT IS WITHIN THE TARGET RANGE. THE CURRENT HAZARD INDEX OF 0.5 IS BELOW THE TARGET OF 1.

THE TOTAL SITE RISK FOR ALL MEDIA TO WHICH EXPOSURE CURRENTLY OCCURS INCLUDES THE ROCK AQUIFER, SURFICIAL SOIL, SURFACE WATER AND SEDIMENTS, AND FISH INGESTION. THE CURRENT TOTAL EXCESS LIFETIME CANCER RISK OF  $9.7 \times (10^{-6})$  IS WITHIN THE TARGET RANGE OF  $(10^{-4})$  TO  $(10^{-6})$ . EXPOSURE TO SURFICIAL SOIL AND INGESTION OF FISH ACCOUNTS FOR MOST OF THIS RISK. THE CURRENT TOTAL HAZARD INDEX 1.4 EXCEEDS THE ACCEPTABLE RANGE OF 1.

HYPOTHETICAL FUTURE CUMULATIVE SITE RISKS WOULD ADD THE RISKS ASSOCIATED WITH CONSUMPTION OF WATER FROM THE SURFICIAL AQUIFER TO THE CURRENT RISK LEVELS. THE HYPOTHETICAL FUTURE EXCESS LIFETIME CANCER RISK OF ALL MEDIA IS  $1.9 \times (10^{-3})$ , WHICH EXCEEDS THE TARGET RANGE. THE TOTAL HYPOTHETICAL FUTURE HAZARD INDEX IS 3.2. THIS ALSO EXCEEDS UNITY BECAUSE OF THE CONTRIBUTION OF THE SURFICIAL AQUIFER AND THE FISH INGESTION PATHWAY.

#### 6.5 ENVIRONMENTAL RISKS

NUMEROUS ORGANIC AND INORGANIC COMPOUNDS WERE DETECTED IN ENVIRONMENTAL SAMPLES AT THE PRLS. IT IS NOT ANTICIPATED THAT THE CURRENT CONCENTRATIONS WILL HAVE AN ADVERSE IMPACT ON THE ENVIRONMENT; HOWEVER, IT IS POSSIBLE THAT CONCENTRATIONS MAY INCREASE OVER TIME. SEDIMENTS OF LITTLE SIXMILE CREEK CONTAIN SOME METAL AND ORGANIC COMPOUNDS AT CONCENTRATIONS EXCEEDING BACKGROUND CONCENTRATIONS. HOWEVER, THE POTENTIAL IMPACT OF THESE CHEMICALS ON AQUATIC ORGANISMS IS UNKNOWN AND AN EVALUATION OF CURRENT ECOSYSTEM CONDITIONS WOULD REQUIRE BIOMONITORING AND TOXICITY TESTS USING SEDIMENT AND WATER FROM THE CREEK. LITTLE SIXMILE CREEK AND SIXMILE CREEK WOULD LIKELY BE THE MOST

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SUSCEPTIBLE TO ENVIRONMENTAL IMPACT SHOULD RELEASE OF CONSTITUENTS INCREASE.

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#### 7.0 DESCRIPTION OF ALTERNATIVES

THE FOLLOWING ALTERNATIVES FOR REMEDIATION WERE EVALUATED IN THE FEASIBILITY STUDY REPORT:

- 1) NO ACTION

- 2) UPGRADE EXISTING COVER
- 3) CLAY MUNICIPAL LANDFILL COVER WITH GAS COLLECTION LAYER
- 4) PERFORMANCE BASED LANDFILL COVER
- 5) ON-SITE INCINERATION

#### 7.1 ALTERNATIVE 1: NO ACTION

THE SUPERFUND PROGRAM REQUIRES THAT THE NO ACTION ALTERNATIVE BE CONSIDERED AT EVERY SITE. UNDER THE NO ACTION ALTERNATIVE, EPA WOULD TAKE NO FURTHER ACTION AT THE SITE TO CONTROL THE SOURCE OF CONTAMINATION. THE NO ACTION ALTERNATIVE SERVES AS A BASELINE WITH WHICH OTHER ALTERNATIVES CAN BE COMPARED.

THE NO ACTION ALTERNATIVE CONSISTS OF UTILIZING THE EXISTING VEGETATIVE COVER AT THE SITE AS A SURFACE BARRIER TO REDUCE THE POTENTIAL FOR CONTACT WITH THE LANDFILL MATERIAL IN CONJUNCTION WITH IMPLEMENTATION OF A GROUND WATER MONITORING PLAN TO PERIODICALLY EVALUATE THE HYDROGEOLOGIC CONDITIONS AND CHEMICAL QUALITY OF GROUND WATER IN THE SURFICIAL AND ROCK AQUIFERS UNDERLYING THE SITE. IT SHOULD BE NOTED THAT THE EXISTING COVER IS NOT PRESENT ON APPROXIMATELY TEN PERCENT OF THE LANDFILL SURFACE. THE WASTE DEPOSITED IN THE LANDFILL IS EXPOSED TO THE SURFACE IN THE AREAS WHERE THE COVER IS NON-EXISTENT.

THE ABOVE GROUND WATER SAMPLING PROGRAM WILL BE IMPLEMENTED AT THE SITE FOR A MAXIMUM OF 20 YEARS. TREND ANALYSES WILL BE PERFORMED ON THE GROUNDWATER ANALYTICAL DATA TO DETERMINE IF THE CONCENTRATIONS OF THE CHEMICAL CONSTITUENTS OF CONCERN HAVE ATTAINED ASYMPTOTIC CONDITIONS.

ALTERNATIVE 1 DOES NOT ATTAIN APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) AND DOES NOT REDUCE POTENTIAL RISKS ASSOCIATED WITH THE SITE.

THE ESTIMATED ANNUAL OPERATING AND MAINTENANCE COST ASSOCIATED WITH THIS ALTERNATIVE IS \$26,900 PER YEAR OR \$335,000 BASED ON A 20 YEAR SERVICE LIFE.

#### 7.2 ALTERNATIVE 2: UPGRADE EXISTING COVER

REMEDIAL ACTION ALTERNATIVE 2 INVOLVES UPGRADING THE EXISTING COVER

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INSTALLED IN 1977 SUCH THAT THE LANDFILL MATERIAL IS COMPLETELY COVERED WITH A NATURAL MATERIAL (SOIL) THAT PREVENTS DIRECT CONTACT WITH THE WASTE AND PROVIDES LONG-TERM PROTECTION TO PUBLIC HEALTH. THE COVER PROPOSED IN THIS ALTERNATIVE IS CONSISTENT WITH THE CLOSURE OF MUNICIPAL LANDFILLS IN 1977. IN ESSENCE, THIS ALTERNATIVE PROPOSES MAINTENANCE ON THE COVER SYSTEM USED TO CLOSE THE PRLS IN 1977.

SURFICIAL DEBRIS AT THE SITE WILL BE COLLECTED AND DISPOSED OF AS FOLLOWS: RUBBER TIRES DEPOSITED ON THE SURFACE OF THE SITE WILL BE COLLECTED, SHREDDED AND DISPOSED OF ON-SITE IN THE LANDFILL OR COLLECTED AND TRANSPORTED OFF-SITE FOR DISPOSAL AT A PERMITTED, COMMERCIAL

FACILITY. WOOD DEBRIS, LARGE METALLIC OBJECTS, AND GENERAL GARBAGE WILL BE DISASSEMBLED OR REDUCED IN SIZE AND DEPOSITED ON-SITE IN THE LANDFILL.

ALL OF THE EXISTING VEGETATION COVERING THE LANDFILL WILL BE CLEARED AND SHREDDED FOR ON-SITE DISPOSAL IN THE LANDFILL. IN ADDITION, WASTE DEPOSITED ALONG LITTLE SIXMILE CREEK WILL BE REMOVED TO A MINIMUM OF FIVE FEET FROM THE CREEK BED AND DEPOSITED ON-SITE IN THE LANDFILL IN A MANNER WHICH MINIMIZES CONCENTRATED WEIGHT LOADINGS AND UNEVEN SETTLEMENT OF THE FINAL COVER.

THIS ALTERNATIVE CONSISTS OF INSTALLING A MINIMUM SIX INCH LAYER OF COMPACTED CLAY ON TOP OF THE GRADED WASTE MATERIAL. THE CLAY WILL BE OVERLAIN WITH A MINIMUM OF SIX INCHES OF TOPSOIL THAT WILL BE SEEDED WITH SHORT-ROOT VEGETATION TO MINIMIZE THE POTENTIAL FOR WIND AND WATER EROSION OF THE COVER.

THE EXISTING SITE TOPOGRAPHY WILL BE MODIFIED IN ORDER TO PROMOTE SURFACE RUNOFF AND MINIMIZE PONDING OF SURFACE WATER ON THE LANDFILL. THE HIGHEST ELEVATION OF THIS LANDFILL WILL BE MODIFIED FROM THE EXISTING 20 FEET ABOVE MEAN SEA LEVEL TO 26 FEET ABOVE MEAN SEA LEVEL. THE LANDFILL WILL BE GRADED AT TWO PERCENT SLOPES ON TOP AND FOR THREE PERCENT HORIZONTAL TO ONE PERCENT VERTICAL SIDE SLOPES. APPROXIMATELY 12,500 CUBIC YARDS OF MATERIAL FROM THE WEST BANK OF LITTLE SIXMILE CREEK AND THE SURFACE OF THE LANDFILL WILL BE RE-DEPOSITED INTO THE FACILITY PRIOR TO INSTALLATION OF THE COVER.

APPROXIMATELY 6,300 LINEAR FEET OF SURFACE WATER DRAINAGE SWALE WILL BE INSTALLED AROUND THE PERIMETER OF THE SITE TO COLLECT STORMWATER RUN-ON AND RUN-OFF. THE DRAINAGE SWALE WILL BE GRADED SUCH THAT STORMWATER IS COLLECTED AND TRANSPORTED TO LITTLE SIXMILE CREEK FOR DISCHARGE.

A SIX FOOT HIGH CHAIN LINK FENCE WILL BE INSTALLED AROUND THE PERIMETER OF THE SITE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE. SIGNS WILL BE POSTED ALONG THE FENCE PROHIBITING TRESPASSING ON THE SITE. SECURED ENTRANCE GATES WILL BE LOCATED ALONG THE PAVED ROADWAYS ADJACENT TO THE SITE FOR AUTHORIZED OR EMERGENCY ACCESS TO THE LANDFILL.

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A GROUNDWATER MONITORING PROGRAM WILL BE IMPLEMENTED AT THE SITE AS PART OF THE POST-REMEDATION CARE FOR THE LANDFILL. GROUND WATER SAMPLES WILL BE COLLECTED FROM MONITORING WELLS LOCATED DOWNGRAIENT OF THE SITE, THE SURFICIAL AQUIFER, AND THE ROCK AQUIFER. MONITORING WELLS IN THE SURFICIAL AND ROCK AQUIFERS WILL ALSO BE LOCATED UPGRADIENT OF THE SITE TO DETERMINE BACKGROUND WATER QUALITY.

THE MONITORING WELLS WILL BE SAMPLED ON A QUARTERLY BASIS FOR THE FIRST YEAR TO ESTABLISH GROUND WATER CONDITIONS AFTER REMEDIAL ACTIVITIES HAVE BEEN COMPLETED. BASED ON THE RESULTING DATA, A DECISION WOULD BE MADE AS TO THE FREQUENCY OF FUTURE SAMPLING. THE ABOVE GROUND WATER SAMPLING

PROGRAM WILL BE IMPLEMENTED AT THE SITE FOR A MAXIMUM OF 20 YEARS IN ACCORDANCE WITH FDER REGULATIONS FOR LONG TERM MAINTENANCE OF MUNICIPAL LANDFILLS. TREND ANALYSES WILL BE PERFORMED ON THE GROUNDWATER ANALYTICAL DATA TO DETERMINE IF THE CONCENTRATIONS OF CHEMICAL CONSTITUENTS MONITORED HAVE OBTAINED ASYMPTOTIC CONDITIONS.

THIS ALTERNATIVE DOES NOT IMPLEMENT TECHNOLOGY COMPONENTS THAT ATTAIN ARARS. WHILE ALTERNATIVE 2 HAS THE POTENTIAL TO ATTAIN THE REMEDIATION GOAL OF MINIMIZING DIRECT CONTACT WITH THE LANDFILL MATERIAL, IT DOES NOT ACKNOWLEDGE THE REMEDIATION GOAL ESTABLISHED FOR GROUND WATER BASED ON THE CONTINUED OPERATION OF EXISTING POTABLE WATER SUPPLY WELLS IMMEDIATELY NORTH OF THE SITE.

THE ESTIMATED CAPITAL COST FOR THIS ALTERNATIVE IS \$3,674,400. ANNUAL OPERATION AND MAINTENANCE COST IS \$168,700 AND TOTAL PRESENT WORTH OF ALTERNATIVE 2 IS \$5,777,000 BASED ON A 20 YEAR SERVICE LIFE.

### 7.3 ALTERNATIVE 3: CLAY MUNICIPAL LANDFILL COVER

REMEDIAL ACTION ALTERNATIVE 3 INVOLVES IMPLEMENTATION OF THE FOLLOWING REMEDIAL TECHNOLOGY COMPONENTS:

- \* IMPLEMENTATION OF INSTITUTIONAL CONTROLS INCLUDING RESTRICTIONS THAT WILL LIMIT GROUND WATER USAGE AND REGULATE FUTURE DEVELOPMENT OF THE SITE;
- \* INSTALLATION OF A COVER SYSTEM THAT COMPLIES WITH THE STATE OF FLORIDA REQUIREMENTS FOR CLOSURE OF MUNICIPAL LANDFILLS (FAC 17-701.070). THE FINAL COVER WILL PROMOTE SURFACE WATER RUNOFF, CONTROL POTENTIAL FUGITIVE VAPOR EMISSIONS AND MINIMIZE THE POTENTIAL FOR DIRECT CONTACT WITH THE LANDFILL MATERIAL;
- \* INSTALLATION OF A PERIMETER SECURITY FENCE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE;
- \* IMPLEMENTATION OF A GROUND WATER MONITORING PROGRAM TO PERIODICALLY EVALUATE THE HYDROGEOLOGIC CONDITIONS AND QUALITY OF GROUND WATER UNDERLYING THE SITE, IN ACCORDANCE

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WITH THE ACL DEMONSTRATION;

- \* EXTEND A CITY WATER MAIN TO RESIDENTS LOCATED IMMEDIATELY NORTH OF THE SITE TO SUPPLY AN ALTERNATIVE DRINKING SOURCE AS A PRECAUTIONARY MEASURE TO MINIMIZE THE POTENTIAL FOR INGESTION OF GROUND WATER CONSTITUENTS ASSOCIATED WITH THE LANDFILL IN THE SURFICIAL AQUIFER; AND
- \* IMPLEMENTATION OF A PLUG AND ABANDONMENT PROGRAM FOR WATER SUPPLY WELLS IN THE AREA IMMEDIATELY NORTH OF THE SITE.

ALL OF THE EXISTING VEGETATION COVERING THE LANDFILL WILL BE CLEARED AND SHREDDED FOR ON-SITE DISPOSAL IN THE LANDFILL. IN ADDITION, WASTE DEPOSITED ALONG BOTH SIDES OF LITTLE SIXMILE CREEK WILL BE REMOVED TO A MINIMUM OF FIVE FEET FROM THE CREEK BED OR THE 100-YEAR FLOOD PLANE, WHICH EVER IS GREATER, AND DEPOSITED ON-SITE IN THE LANDFILL.

THE FINAL COVER SYSTEM PROPOSED FOR THE LANDFILL INCLUDES A SIX INCH GAS COLLECTION LAYER, CONSISTING OF COURSE GRAIN SAND AND PIPING, WILL BE INSTALLED DIRECTLY ON TOP OF THE GRADED WASTE MATERIAL. A GEOTEXTILE FABRIC WILL BE INSTALLED ON TOP OF THE GAS COLLECTION LAYER AND OVERLAIN BY A CAP CONSISTING OF TWO FEET OF COMPACTED CLAY THAT WILL HAVE A MINIMUM VERTICAL PERMEABILITY OF  $1 \times (10^{-7})$  CM/SEC. FIGURE 7-1 PRESENTS A CONCEPTUAL SCHEMATIC OF THE COVER SYSTEM.

THE COMPACTED CLAY CAP WILL BE OVERLAIN WITH A ONE FOOT LAYER OF TOPSOIL. THE TOPSOIL WILL BE SEEDED WITH SHORT ROOT VEGETATION TO MINIMIZE THE POTENTIAL FOR WIND AND WATER EROSION OF THE COVER. THE COVER SYSTEM DESCRIBED ABOVE WILL PROVIDE THREE FEET OF BARRIER BETWEEN THE SURFACE OF THE SITE AND THE MATERIAL DEPOSITED IN THE LANDFILL, THUS EFFECTIVELY MINIMIZING THE POTENTIAL FOR DIRECT CONTACT WITH THE LANDFILL MATERIAL. THE FINAL TOPOGRAPHY OF THE SITE WILL BE CONFIGURED TO PROMOTE STORMWATER RUN-OFF AND REDUCE THE POTENTIAL FOR SURFACE WATER PONDING ON THE COVER. PERIMETER DRAINAGE SWALES WILL BE INSTALLED TO FACILITATE THE TRANSPORTATION OF RUN-OFF ASSOCIATED WITH THE LANDFILL. DEBRIS LOCATED IN THE 100-YEAR FLOOD PLAIN OF LITTLE SIXMILE CREEK WILL BE REMOVED AND DEPOSITED ON THE LANDFILL.

A GROUND WATER MONITORING PROGRAM AND MAINTENANCE OF THE COVER SYSTEM WILL BE IMPLEMENTED AT THE SITE AS PART OF THE POST-REMEDICATION CARE FOR THE LANDFILL UP TO 20 YEARS. GROUND WATER SAMPLES WILL BE COLLECTED FROM MONITORING WELLS LOCATED DOWNGRADIENT OF THE SITE, THE SURFICIAL AQUIFER, AND THE ROCK AQUIFER.

MONITORING WELLS WILL BE UTILIZED TO COLLECT POTENTIOMETRIC AND GROUND WATER QUALITY DATA ONLY. THEY WILL BE SAMPLED ON A QUARTERLY BASIS FOR THE FIRST YEAR TO ESTABLISH BACKGROUND DATA AFTER REMEDIATION ACTIVITIES HAVE BEEN COMPLETED IN THE SURFICIAL AND ROCK AQUIFERS.

THIS ALTERNATIVE DOES COMPLY WITH THE ACTION AND LOCATION SPECIFIC ARARS

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IDENTIFIED FOR THE PRLS.

THE ESTIMATED CAPITAL COST ASSOCIATED WITH ALTERNATIVE 3 IS \$7,803,600. THE ESTIMATED ANNUAL OPERATION AND MAINTENANCE COST IS \$171,100 AND THE TOTAL PRESENT WORTH OF REMEDIAL ACTION ALTERNATIVE 3 IS \$9,935,000.

#### 7.4 ALTERNATIVE 4: PERFORMANCED BASED LANDFILL COVER

REMEDIAL ACTION ALTERNATIVE 4 INVOLVES IMPLEMENTATION OF THE FOLLOWING REMEDIAL TECHNOLOGY COMPONENTS:

- \* IMPLEMENTATION OF INSTITUTIONAL CONTROLS INCLUDING RESTRICTIONS THAT WILL LIMIT GROUND WATER USAGE IN THE AREA IMMEDIATELY NORTH OF THE SITE AND REGULATE FUTURE DEVELOPMENT OF THE SITE;
- \* INSTALLATION OF A COVER SYSTEM THAT COMPLIES WITH THE STATE OF FLORIDA REQUIREMENTS FOR CLOSURE OF LANDFILLS (FAC 17-701.075). THE FINAL COVER WILL PROMOTE SURFACE WATER RUNOFF, CONTROL POTENTIAL FUGITIVE VAPOR EMISSIONS, MINIMIZE THE POTENTIAL FOR DIRECT CONTACT WITH THE LANDFILL MATERIAL AND REDUCE THE POTENTIAL FOR LEACHATE GENERATION;
- \* INSTALLATION OF A PERIMETER SECURITY FENCE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE;
- \* IMPLEMENTATION OF A GROUND WATER MONITORING PROGRAM TO PERIODICALLY EVALUATE THE HYDROGEOLOGIC CONDITIONS AND QUALITY OF GROUND WATER UNDERLYING THE SITE, IN ACCORDANCE WITH THE ACL DEMONSTRATION;
- \* IMPLEMENTATION OF A PLUG AND ABANDONMENT PROGRAM FOR WATER SUPPLY WELLS LOCATED IMMEDIATELY NORTH OF THE SITE; AND
- \* EXTEND A CITY WATER MAIN TO THE AREA IMMEDIATELY NORTH OF THE SITE TO SUPPLY RESIDENTS LOCATED WITHIN THIS AREA WITH AN ALTERNATE POTABLE WATER SUPPLY.

THE COVER PROPOSED FOR THE SITE IN REMEDIAL ACTION ALTERNATIVE 4 INCLUDES A GEOTEXTILE FABRIC THAT WILL BE INSTALLED DIRECTLY ON TOP OF THE GRADED WASTE MATERIAL. A 12-INCH GAS COLLECTION LAYER, CONSISTING OF COURSE GRAINED SAND AND PIPING, WILL BE INSTALLED ON TOP OF THE GEOTEXTILE FABRIC.

A GEOTEXTILE FABRIC WILL BE INSTALLED ON TOP OF THE GAS COLLECTION LAYER AND SUBSEQUENTLY OVERLAIN BY A LOW PERMEABILITY LAYER CONSISTING OF 24 INCHES OF COMPACTED CLAY. THE COMPACTED CLAY CAP WILL BE OVERLAIN WITH A SYNTHETIC LINER. A DRAINAGE LAYER, CONSISTING OF 12 INCHES OF COARSE

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GRAIN SAND, WILL BE INSTALLED ON TOP OF THE SYNTHETIC LINER TO PROMOTE SURFACE WATER RUNOFF AND MINIMIZE THE POTENTIAL FOR PONDING OF WATER ON THE SYNTHETIC LINER. A GEOTEXTILE FABRIC WILL BE INSTALLED ON TOP OF THE SAND DRAINAGE LAYER AND SUBSEQUENTLY OVERLAIN WITH 18 INCHES OF CLEAN GENERAL FILL MATERIAL TO ATTAIN THE FINAL GRADE. THE TOPSOIL WILL BE SEEDED WITH SHORT ROOT VEGETATION TO MINIMIZE THE POTENTIAL FOR WIND AND WATER EROSION OF THE COVER. THE COVER SYSTEM DESCRIBED ABOVE WILL PROVIDE A SIX FOOT BARRIER BETWEEN THE SURFACE OF THE SITE AND THE MATERIAL DEPOSITED ON THE LANDFILL.

A GROUND WATER MONITORING PROGRAM WILL BE IMPLEMENTED AT THE SITE AS

PART OF THE POST-REMEDIAL CARE FOR THE LANDFILL. GROUND WATER SAMPLES WILL BE COLLECTED FROM MONITORING WELLS LOCATED DOWNGRAIENT OF THE SITE, THE SURFICIAL AQUIFER, AND THE ROCK AQUIFER. MONITORING WELLS IN THE SURFICIAL AND ROCK AQUIFERS WILL ALSO BE LOCATED UPGRADIENT OF THE SITE TO DETERMINE BACKGROUND WATER QUALITY.

THE MONITORING WELLS WILL BE SAMPLED ON A QUARTERLY BASIS FOR THE FIRST YEAR TO ESTABLISH GROUND WATER CONDITIONS AFTER REMEDIAL ACTIVITIES HAVE BEEN COMPLETED. BASED ON THE RESULTING DATA, A DECISION WOULD BE MADE AS TO THE FREQUENCY OF SAMPLING. THE ABOVE GROUND WATER SAMPLING PROGRAM WILL BE IMPLEMENTED AT THE SITE FOR A MAXIMUM OF 20 YEARS IN ACCORDANCE WITH FDER REGULATIONS FOR LONG TERM MAINTENANCE OF MUNICIPAL LANDFILLS.

THIS ALTERNATIVE DOES COMPLY WITH THE ACTION AND LOCATION SPECIFIC ARARS IDENTIFIED AT THE PRLS. HOWEVER, IT WILL NOT COMPLY WITH CHEMICAL SPECIFIC ARARS FOR SOIL BECAUSE SOIL CONTAINING CONCENTRATIONS OF CONTAMINANTS ABOVE CLEAN-UP LEVELS WOULD REMAIN IN PLACE.

ESTIMATED CAPITAL COSTS FOR THIS ALTERNATIVE IS \$21,698,700. THE ESTIMATED ANNUAL OPERATION AND MAINTENANCE COST IS \$215,200 AND THE TOTAL PRESENT WORTH OF ALTERNATIVE 5 IS \$25,007,000 BASED ON A 30 YEAR SERVICE LIFE AND A 5 PERCENT DISCOUNT RATE.

#### 7.5 ALTERNATIVE 5: ON-SITE INCINERATION AND OFF-SITE DISPOSAL

REMEDIAL ACTION ALTERNATIVE 5 INVOLVES THE IMPLEMENTATION OF THE FOLLOWING REMEDIAL TECHNOLOGY COMPONENTS:

- \* IMPLEMENTATION OF INSTITUTIONAL CONTROLS INCLUDING RESTRICTIONS THAT WILL LIMIT GROUND WATER USAGE IN THE AREA IMMEDIATELY NORTH OF THE SITE AND REGULATE FUTURE DEVELOPMENT OF THE SITE;
- \* IMPLEMENTATION OF A PLUG AND ABANDONMENT PROGRAM FOR THE WATER SUPPLY WELLS LOCATED IMMEDIATELY NORTH OF THE SITE;
- \* EXTENSION OF A CITY WATER MAIN TO THE AREA IMMEDIATELY NORTH OF THE SITE TO SUPPLY RESIDENTS LOCATED WITHIN THIS

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AREA WITH AN ALTERNATE POTABLE WATER SUPPLY;

- \* INSTALLATION OF A PERIMETER SECURITY FENCE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE;
- \* EXCAVATION AND SEGREGATION OF THE WASTE MATERIAL;
- \* ON-SITE INCINERATION OF THE WASTE MATERIAL;
- \* OFF-SITE LAND DISPOSAL OF SEGREGATED NON-COMBUSTIBLES AND ASH FROM THE INCINERATOR; AND

\* GROUND WATER MONITORING, IN ACCORDANCE WITH ACL  
DEMONSTRATION.

ON-SITE MOBILE, ROTARY KILN INCINERATORS WILL BE BROUGHT TO THE PRLS FOR THE THERMAL TREATMENT OF THE WASTE. THE WASTE WILL BE EXCAVATED FROM THE SITE, DEWATERED, SEGREGATED TO REMOVE INERT COMBUSTIBLES, AND SUBSEQUENTLY INCINERATED. THE ASH FROM THE INCINERATOR WILL BE COLLECTED AND STABILIZED IF NECESSARY. IT WILL THEN BE TRANSPORTED TO A PERMITTED, OFF-SITE, COMMERCIAL FACILITY FOR LAND DISPOSAL. ONCE THE WASTE MATERIAL HAS BEEN REMOVED FROM THE SITE, THE EXCAVATION WILL BE BACKFILLED WITH CLEAN SOIL SIMILAR TO NATURAL SOILS AT THE SITE. THE BACKFILL WILL BE PLACED IN LIFTS AND COMPACTED TO MINIMIZE SUBSEQUENT SUBSIDENCE. A GROUND WATER MONITORING PROGRAM IDENTICAL TO THE ONE DISCUSSED IN PREVIOUS ALTERNATIVES WILL BE IMPLEMENTED AT THE SITE TO EVALUATE GROUND WATER CONDITIONS IN THE SURFICIAL AND ROCK AQUIFERS.

THIS ALTERNATIVE WILL COMPLY WITH THE FEDERAL AND STATE CHEMICAL SPECIFIC ARARS. ALTERNATIVE 5 WILL ALSO COMPLY WITH ALL OF THE POTENTIAL FEDERAL AND STATE LOCATION-SPECIFIC ARARS IDENTIFIED. STACK EMISSIONS WOULD CONFORM TO PROVISIONS OF THE CLEAN AIR ACT.

ESTIMATED CAPITAL COST FOR THIS ALTERNATIVE IS \$208,247,000. THE ANNUAL OPERATION AND MAINTENANCE COST FOR THE IMPLEMENTATION OF ALTERNATIVE 5 IS \$16,165,00. THE TOTAL PRESENT WORTH OF REMEDIAL ACTION ALTERNATIVE 5 IS \$301,778,000 BASED ON A 7 YEAR SERVICE LIFE AND A 5 PERCENT DISCOUNT RATE.

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## 8.0 SUMMARY OF COMPARATIVE ANALYSIS OF ALTERNATIVES

THIS SECTION PROVIDES THE BASIS FOR DETERMINING WHICH ALTERNATIVE PROVIDES THE BEST BALANCE OF TRADE-OFFS WITH RESPECT TO THE EVALUATION CRITERIA. THE MAJOR OBJECTIVE OF THE FEASIBILITY STUDY WAS TO DEVELOP, SCREEN, AND EVALUATE ALTERNATIVES FOR REMEDIATING THE PICKETTVILLE ROAD LANDFILL SITE. SEVERAL REMEDIAL TECHNOLOGIES WERE IDENTIFIED FOR THE SURFACE SOIL CLEANUP. THESE TECHNOLOGIES WERE SCREENED BASED ON THEIR FEASIBILITY WITH RESPECT TO THE CONTAMINANTS PRESENT AND THE SITE

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CHARACTERISTICS. THE TECHNOLOGIES THAT REMAINED AFTER THE INITIAL SCREENING WERE EVALUATED IN DETAIL BASED ON THE NINE CRITERIA REQUIRED BY SARA. COST WAS USED TO COMPARE ALTERNATIVES ONLY WHEN THEY PROVIDED SIMILAR DEGREES OF PROTECTION AND TREATMENT. A SUMMARY OF THE RELATIVE PERFORMANCE OF THE ALTERNATIVES WITH RESPECT TO EACH OF THE NINE CRITERIA IS PROVIDED IN THIS SECTION. A GLOSSARY OF THE EVALUATION CRITERIA IS OFFERED IN TABLE 8.1.

### 8.1 OVERALL PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

ALL OF THE ALTERNATIVES, WITH THE EXCEPTION OF THE "NO ACTION"



ALTERNATIVE, WOULD PROVIDE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY ELIMINATING, REDUCING, OR CONTROLLING RISK THROUGH TREATMENT, ENGINEERING CONTROLS, OR INSTITUTIONAL CONTROLS. BECAUSE THE "NO ACTION" ALTERNATIVE OFFERS NO REDUCTION IN RISK TO HUMAN HEALTH AND THE ENVIRONMENT, IT IS NOT CONSIDERED FURTHER IN THIS ANALYSIS AS AN OPTION FOR THIS SITE.

ALTERNATIVES 2, 3, AND 4 WILL MINIMIZE DIRECT CONTACT WITH THE LANDFILL WASTE AND EXPOSURE THROUGH INHALATION. ALTERNATIVE 5 IS THE MOST PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT BECAUSE ALL WASTE IS REMOVED FROM THE AREA OF CONTAMINATION FOR TREATMENT.

#### 8.2 COMPLIANCE WITH APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

ALTERNATIVE 2 DOES NOT IMPLEMENT TECHNOLOGY COMPONENTS THAT ATTAIN ARARS. WHILE ALTERNATIVE 2 HAS THE POTENTIAL TO ATTAIN THE REMEDIATION GOAL OF MINIMIZING DIRECT CONTACT WITH THE LANDFILL MATERIAL, IT DOES NOT ACKNOWLEDGE THE REMEDIATION GOAL ESTABLISHED FOR GROUNDWATER BASED ON THE CONTINUED OPERATION OF EXISTING POTABLE WATER SUPPLY WELLS IMMEDIATELY NORTH OF THE SITE. BECAUSE ALTERNATIVE 2 DOES NOT MEET THE ARARS FOR THE SITE IT IS NOT CONSIDERED FURTHER IN THIS ANALYSIS AS AN OPTION.

ALTERNATIVES 3, 4, AND 5 WOULD COMPLY WITH ALL POTENTIAL FEDERAL AND STATE ARARS.

#### 8.3 LONG-TERM EFFECTIVENESS

ALTERNATIVE 5 PROVIDES THE MOST RELIABILITY AND REQUIRES THE LEAST LONG-TERM MANAGEMENT OF THE SITE BECAUSE IT INVOLVES THE REMOVAL OF ALL WASTE AND CONTAMINATED SOIL. LONG-TERM MAINTENANCE REQUIREMENTS FOR ALTERNATIVES 3, 4 ARE LIMITED TO CAP MAINTENANCE AND MONITORING.

#### 8.4 REDUCTION OF TOXICITY, MOBILITY, OR VOLUME

BECAUSE ALTERNATIVE 5 INVOLVES THE EXCAVATING OF WASTE AND CONTAMINATED SOIL AND SUBSEQUENT INCINERATION, IT PROVIDES FOR THE MAXIMAL REDUCTION OF CONTAMINANT TOXICITY, MOBILITY, AND VOLUME WITH RESPECT TO THE SITE.

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ALTERNATIVES 3 AND 4 DO NOT PROVIDE FOR THE REDUCTION OF TOXICITY, MOBILITY, AND VOLUME OF THE LANDFILL WASTE.

#### 8.5 SHORT-TERM EFFECTIVENESS

ALTERNATIVES 3 AND 4 ARE THE MOST DESIRABLE IN TERMS OF THIS CRITERION. IMPLEMENTATION TIME FOR THESE ALTERNATIVES IS SHORTER (ONE OR TWO YEARS) THAN ALTERNATIVE 5, WHICH WOULD REQUIRE 7-8 YEARS TO IMPLEMENT.

RISKS TO ON-SITE WORKERS AND THE SURROUNDING COMMUNITY ARE PRIMARILY DUE

TO GENERATION OF AIRBORNE DUST DURING CLEARING AND WASTE EXCAVATION. ALTERNATIVES 3 AND 4 WOULD REQUIRE LIMITED TO EXTENSIVE EXCAVATION. ALTERNATIVE 5 WOULD GENERATE INCINERATOR STACK EMISSIONS THAT ARE CONTROLLABLE.

#### 8.6 IMPLEMENTABILITY

THE PROCESS COMPONENTS REQUIRED FOR ALTERNATIVES 3 AND 4 ARE AVAILABLE AND HAVE BEEN EFFECTIVELY IMPLEMENTED FOR NUMEROUS SITE REMEDIATIONS AT LANDFILLS SIMILAR TO THE PRLS. GENERAL EARTHMOVING AND EXCAVATION EQUIPMENT WILL BE REQUIRED TO UPGRADE AND INSTALL THE COVERS.

ALTERNATIVE 5 WOULD BE DIFFICULT TO IMPLEMENT BECAUSE THE ONE MILLION YD3 OF WASTES ARE DEPOSITED IN THE WATER TABLE UP TO 18 M BELOW LAND SURFACE. ALTERNATIVE 5 WOULD REQUIRES COMPLETE EXCAVATION AS WELL AS CONSTRUCTION AND OPERATION OF INCINERATION FACILITIES.

#### 8.7 COST

COST-EFFECTIVENESS IS DETERMINED BY COMPARING THE COSTS OF ALL ALTERNATIVES BEING CONSIDERED WITH THEIR OVERALL EFFECTIVENESS TO DETERMINE WHETHER THE COSTS ARE PROPORTIONAL TO THE EFFECTIVENESS ACHIEVED. ALTERNATIVES 3 AND 4 ARE MORE COST-EFFECTIVE THAN ALTERNATIVE 5 BECAUSE THEY OFFER SIMILAR REDUCTIONS IN RISK TO HUMAN HEALTH AND THE ENVIRONMENT.

THE ESTIMATED COST FOR EACH ALTERNATIVE IS AS FOLLOWS:

ALTERNATIVE	COST (TOTAL PRESENT NET WORTH)
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ALTERNATIVE 3	
CLAY COVER WITH ALTERNATIVE	\$9,935,000
WATER SUPPLY	

ALTERNATIVE 4	
ENGINEERED PERFORMANCE COVER	\$25,007,000
WITH ALTERNATE WATER SUPPLY	

ALTERNATIVE 5	
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ON-SITE INCINERATION	\$301,778,000
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#### 8.8 STATE ACCEPTANCE

THE STATE OF FLORIDA, AS REPRESENTED BY THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION, HAS VERBALLY CONCURRED IN THE SELECTION OF ALTERNATIVE 3 AS THE PREFERRED ALTERNATIVE FOR THE PICKETTVILLE ROAD LANDFILL SITE.

#### 8.9 COMMUNITY ACCEPTANCE

DURING THE PUBLIC MEETING, HELD ON JULY 12, 1990, THE PICKETTVILLE COMMUNITY INDICATED A STRONG PREFERENCE FOR ALTERNATIVE 5.

#SR

#### 9.0 SELECTED REMEDY

EPA'S PREFERRED ALTERNATIVE FOR THE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AT THE PRLS IS ALTERNATIVE NO. 3, WHICH CONSISTS OF THE CONSTRUCTION OF A CLAY LANDFILL COVER WITH A PASSIVE GAS COLLECTION LAYER. THIS ALTERNATIVE ALSO INCLUDES THE EXTENSION OF THE CITY WATER MAIN, CONTINUOUS GROUND WATER MONITORING, AND THE PLUGGING AND ABANDONMENT OF POTABLE WATER SUPPLY WELLS. THE SPECIFIC WELLS TO BE ABANDONED WILL BE DETERMINED DURING THE REMEDIAL DESIGN PHASE.

RESTORATION OF THE LITTLE SIXMILE CREEK WILL BE CONDUCTED TO REMOVE WASTE WHICH HAVE MIGRATED FROM THE SITE INTO THE CREEK. WASTE DEPOSITED ALONG BOTH SIDES OF LITTLE SIXMILE CREEK WILL BE REMOVED TO A MINIMUM OF FIVE FEET FROM THE CREEK BED OR THE 100-YEAR FLOOD PLANE, WHICH EVER IS GREATER, AND DEPOSITED ON-SITE IN THE LANDFILL. AN ECOLOGICAL STUDY OF LITTLE SIXMILE CREEK WILL BE CONDUCTED TO DETERMINE IF ANY NEGATIVE ENVIRONMENTAL IMPACTS TO THE CREEK HAVE OCCURRED. IN THE EVENT THAT THE ECOLOGICAL STUDY REVEALS CONTAMINATION WHICH MAY IMPAIR THE ECOLOGICAL COMMUNITY, ADDITIONAL REMEDIAL ACTIONS FOR THE CREEK MAY BE NECESSARY.

THE PRE-DESIGN PHASE OF THIS ALTERNATIVE WILL INCLUDE AN EXTENSIVE WELL SURVEY AND THE INSTALLATION OF THREE DEEP FLORIDAN MONITORING WELLS THAT WILL DETERMINE THE VERTICAL EXTENT OF CONTAMINATION. IN THE EVENT THAT THESE WELLS SHOW CONTAMINATION ABOVE THE MCLS, A FEASIBILITY ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES WILL BE CONDUCTED. THE ROD WILL THEN BE AMENDED IF DEEMED NECESSARY TO ADDRESS THE GROUNDWATER CONTAMINATION.

THE GROUNDWATER QUALITY DATA FOR THE PRLS INDICATES THAT SPORADIC CONTAMINATION IS EMANATING FROM THE LANDFILL. THIS CAN BE EXPECTED WHEN A HETEROGENEOUS SOURCE IS INVOLVED. HOWEVER, MAXIMUM CONTAMINANT LEVELS (MCLS) IN DRINKING WATER ARE VIOLATED FOR BENZENE AND VINYL CHLORIDE IN OFF-SITE MONITOR WELL SMW-4. THE GROUND WATER IN THE SURFICIAL AQUIFER HAS BEEN CLASSIFIED AS CLASS IIB, A POTENTIAL SOURCE OF DRINKING WATER,

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UTILIZING THE EPA GROUNDWATER CLASSIFICATION GUIDELINES. THEREFORE, THE MCLS ARE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) FOR THE GROUND WATER AT THE SITE.

THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) ALLOWS FOR THE SETTING OF ALTERNATE CONCENTRATION LIMITS (ACLS) WHEN THE CRITERIA OF SECTION 121(D)(II)(B)(II) ARE MET AT A SUPERFUND SITE. THESE CONDITIONS ARE FULFILLED AT THE PRLS. THEREFORE, ACLS WILL BE SET SUCH THAT THE MIGRATION OF CONTAMINANTS FROM THE LANDFILL AT OR BELOW THE ACLS WILL BE PROTECTIVE OF SURFACE-WATER QUALITY AT THE POINT OF DISCHARGE. IN DURING THE LONG TERM MONITORING OF THE GROUNDWATER

QUALITY, CONTAMINANTS ARE DETECTED ABOVE THE ACLS, A FEASIBILITY ANALYSIS OF GROUNDWATER REMEDIAL ALTERNATIVES WILL BE PERFORMED. THE ROD WILL THEN BE AMENDED IF DEEMED NECESSARY TO ADDRESS THE GROUNDWATER CONTAMINATION.

GROUNDWATER RECOVERY AND TREATMENT WERE NOT CONSIDERED FEASIBLE BECAUSE OF THE PHYSICAL CHARACTERISTICS OF THE SITE (OVER 1 MILLION YD3 OF WASTES, PORTIONS OF WHICH ARE DEPOSITED IN THE WATER TABLE UP TO 18M BELOW LAND SURFACE).

INSTITUTIONAL CONTROLS WILL BE IMPOSED TO ASSURE THAT GROUND WATER BETWEEN THE SOURCE AND THE DISCHARGE POINT WILL NOT BE USED FOR ANY PURPOSES THAT COULD RESULT IN HUMAN EXPOSURES TO CONTAMINANTS.

BASED ON CURRENT INFORMATION, THE SELECTED REMEDY PROVIDES THE BEST BALANCE OF THE NINE CRITERIA THAT EPA USES TO EVALUATE EACH REMEDIAL ALTERNATIVE PROPOSED FOR A SITE. THE RATIONALE FOR SELECTING THIS ALTERNATIVE INCLUDES THE FOLLOWING REASONS:

- \* PROVIDES IMMEDIATE PROTECTION TO HUMAN HEALTH FROM POTENTIAL THREATS ASSOCIATED WITH DIRECT CONTACT WITH THE CONTAMINATED SURFACE SOIL, WASTE, AND GROUND WATER.
- \* PROVIDES AN EQUAL AMOUNT OF PROTECTION AS A PERFORMANCE BASE LANDFILL COVER DUE TO THE FACT THAT THE WASTE IS DEPOSITED IN THE WATER TABLE.

#### 9.1 CLEANUP GOALS

ALTERNATE CONCENTRATION LIMITS (ACLS) DETERMINATION: IN SECTION 121(D)(2)(B)(II) OF SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 (SARA) ACLS MAY BE ESTABLISHED WHERE "ON THE BASIS OF MEASUREMENTS OR PROJECTIONS, THERE IS OR WILL BE NO STATISTICALLY SIGNIFICANT INCREASE OF SUCH CONSTITUENTS FROM SUCH GROUND WATER IN SUCH SURFACE WATER AT THE POINT OF ENTRY OR AT ANY POINT WHERE THERE IS REASON TO BELIEVE ACCUMULATION OF CONSTITUENTS MAY OCCUR DOWNSTREAM."

AT THE PRLS, GROUND WATER IS DISCHARGING INTO LITTLE SIXMILE CREEK. THE CONTAMINANTS OF CONCERN -- BENZENE AND VINYL CHLORIDE -- HAVE NOT BEEN

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DETECTED IN WATER OR SEDIMENT SAMPLES TAKEN FROM THE STREAM. THE CURRENT PRACTICAL QUANTIFICATION LIMIT FOR THESE TWO COMPOUNDS IN WATER SAMPLES IS 1.0 PPB. WE WILL SET THE MAXIMUM ALLOWABLE LEVEL IN THE SURFACE WATER AT TWO ORDERS OF MAGNITUDE BELOW THIS NUMBER OR 0.01 PPB, PROVIDING ADDITIONAL ASSURANCE THAT THE COMPOUNDS WILL NOT BE DETECTED.

DURING A USGS STUDY IN THE AREA, IT WAS DETERMINED THAT A LOW FLOW DISCHARGE RATE FOR LITTLE SIXMILE CREEK WAS 2.66 CUBIC FEET PER SECOND (CFS). THE STREAM CHANNEL IS APPROXIMATELY 20 TO 30 FEET IN WIDTH. FOR THE MODELING DEMONSTRATION IT WILL BE ASSUMED THAT GROUND WATER DISCHARGE FROM THE PRLS TO THE STREAM OCCURS OVER A WIDTH OF 10 FEET.

IT IS ASSUMED THAT A CONTAMINANT PLUME OF 50 FEET IN WIDTH DISCHARGES TO THE STREAM DOWNGRADIENT OF THE PRLS. THE GROUNDWATER VELOCITY AS DETERMINED IN THE REMEDIAL INVESTIGATION REPORT IS 0.04 FEET PER DAY (FT/D).

USING THE ABOVE DATA A DILUTION FACTOR WAS DETERMINED FOR CONTAMINANTS IN GROUND WATER DISCHARGING TO LITTLE SIXMILE CREEK; THIS DILUTION FACTOR IS EQUAL TO 11,566. APPLYING THIS FACTOR TO THE ALLOWABLE CONCENTRATION IN SURFACE WATER OF 0.01 PPB RESULTS IN AN ALLOWABLE CONCENTRATION IN GROUND WATER AT THE POINT OF EXPOSURE (POE) OF 115 PPB.

SOLUTE TRANSPORT MODELING WAS PERFORMED TO PREDICT THE ACL AT THE POINT OF COMPLIANCE (POC) OR THE EDGE OF THE LANDFILL. THE MODELING DEMONSTRATION INDICATED THAT NO CONTAMINANT CONCENTRATION REDUCTION IS EXPECTED BETWEEN THE POC AND THE POE UNDER A CONTINUOUS SOURCE SCENARIO OVER A 30-YEAR SIMULATION TIME. THEREFORE, THE ACL FOR BENZENE AND VINYL CHLORIDE WILL BE SET AT 115 PPB AT THE POC.

THE POC MONITOR WELLS ARE SMW-7, SMW-8, AND SMW-10. OFF-SITE MONITOR WELL SMW-4 WILL BE MONITORED TO THAT ASSURE THAT FUTURE LEVELS IN THE CONTAMINATION PREVIOUSLY DETECTED AT THIS LOCATION DO NOT EXCEED THE ACLS FOR BENZENE AND VINYL CHLORIDE.

THE ACLS ARE CONTINGENT UPON INSTITUTIONAL CONTROLS BEING ESTABLISHED SO THAT GROUND WATER WITHIN THE EFFECTED AREA WILL NOT BE USED IN ANY WAY THAT COULD RESULT IN HUMAN EXPOSURES TO CONTAMINANTS AS PER SECTION 121(D)(2)(B)(II)(III) OF SARA.

#### DILUTION MODEL:

##### GROUNDWATER INPUTS

VELOCITY (V) = 0.04 FT/D  
= 0.00000046 FT/S

DISCHARGE AREA (A) = 10 FT X 50 FT  
= 500 FT<sup>2</sup>

DISCHARGE (QGW) = V X A

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= 0.00000046 FT/S X 500 FT<sup>2</sup>  
= 0.00023 CFS

##### SURFACE WATER INPUTS

DISCHARGE (QSW) = 2.66 CFS  
CONCENTRATION (CSW) = 0.01 PPB

#### CALCULATION OF DILUTION FACTOR

$$\begin{aligned}
 DF &= QGW + QSW/QGW \\
 &= 0.00023 \text{ CFS} + 2.66 \text{ CFS}/0.00023 \text{ CFS} \\
 &= 11,566
 \end{aligned}$$

CALCULATION OF ALLOWABLE CONCENTRATION IN GROUND WATER AT THE POINT OF EXPOSURE

$$\begin{aligned}
 \text{CONCENTRATION (CGW)} &= \text{CSW} \times \text{DF} \\
 &= 0.01 \text{ PPB} \times 11,566 \\
 &= 115 \text{ PPB}
 \end{aligned}$$

#### ONE-DIMENSIONAL SOLUTE TRANSPORT MODEL

##### INPUTS

$$\begin{aligned}
 \text{VELOCITY (V)} &= 0.04 \text{ FT/D} \\
 \text{EFFECTIVE POROSITY (N)} &= 0.2 \\
 \text{LONGITUDINAL DISPERSIVITY} &= 40 \text{ FT} \\
 \text{RETARDATION FACTOR} &= 1 \quad (\text{NO RETARDATION}) \\
 \text{TIME (T)} &= 30 \text{ YEARS} \\
 &= 10,950 \text{ DAYS} \\
 \text{DISTANCE FROM POC TO POE} &= 400 \text{ FT} \\
 \text{INITIAL CONCENTRATION (CO)} &= 0 \text{ PPB}
 \end{aligned}$$

##### MODEL USED:

ONED1 - AN ANALYTICAL MODEL FOR SOLUTE TRANSPORT IN A SEMI-INFINITE COLUMN FROM THE INTERNATIONAL GROUND WATER MODELING CENTER, INDIANAPOLIS, INDIANA.

USING THE ABOVE INPUTS THE SOLUTE TRANSPORT MODEL PREDICTS THAT UNDER A CONTINUOUS SOURCE SCENARIO OVER A 30-YEAR MIGRATION PERIOD, THE CONTAMINANTS OF CONCERN WOULD GRADUALLY REACH THE POINT OF EXPOSURE (LITTLE SIXMILE CREEK) AT CONCENTRATIONS EQUAL TO THE ALLOWABLE CONCENTRATION. THIS IS REASONABLE SINCE THE TRAVEL DISTANCE FROM THE SOURCE TO THE RECEPTOR IS 400 FEET. THEREFORE, THE ACLS FOR BENZENE AND VINYL CHLORIDE WILL BE SET AT THE ALLOWABLE GROUNDWATER CONCENTRATION OF

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115 PPB.

##### #SD 10.0 STATUTORY DETERMINATIONS

THE US EPA AND FDER HAVE DETERMINED THAT THIS REMEDY WILL SATISFY THE STATUTORY REQUIREMENTS OF SECTION 121 OF CERCLA BY PROVIDING PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT, ATTAINING ARARS, PROVIDING COST EFFECTIVENESS, AND UTILIZING PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES OR RESOURCE RECOVERY TECHNOLOGIES TO THE MAXIMUM

EXTENT PRACTICABLE.

#### 10.1 PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT

THE SELECTED REMEDY OF A CLAY LANDFILL COVER PROVIDES PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT BY ELIMINATING THE DIRECT THREAT THROUGH DERMAL CONTACT WITH CONTAMINATED SURFACE SOIL AND BURIED WASTE. THE OTHER COMPONENTS OF THE REMEDY SUCH AS EXTENSION OF THE CITY WATER MAIN, PLUG AND ABANDONMENT OF POTABLE WATER WELLS, AND GROUND WATER MONITORING, WILL PREVENT PUBLIC EXPOSURE TO THE CONTAMINANTS PRESENT IN THE GROUND WATER.

#### 10.2 ATTAINMENT OF THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS)

REMEDIAL ACTIONS PERFORMED UNDER CERCLA, AS AMENDED BY SARA, MUST COMPLY WITH ALL APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARS) OR COMPLY WITH A JUSTIFIABLE WAIVER. THE PREFERRED ALTERNATIVE FOR THE PRLS WAS EVALUATED ON THE BASIS OF THE DEGREE IT COMPLIED TO THESE REQUIREMENTS. THE RECOMMENDED ALTERNATIVE WAS FOUND TO MEET OR EXCEED THE ARARS.

AS STATED IN SECTION 121(D)(2)(B)(II) OF SARA, ACLS MAY BE ESTABLISHED WHERE "ON THE BASIS OF MEASUREMENTS OR PROJECTIONS, THERE IS OR WILL BE NO STATISTICALLY SIGNIFICANT INCREASE OF SUCH CONSTITUENTS FROM SUCH GROUND WATER IN SUCH SURFACE WATER AT THE POINT OF ENTRY OR AT ANY POINT WHERE THERE IS REASON TO BELIEVE ACCUMULATION OF CONSTITUENTS MAY OCCUR DOWNSTREAM". AT THE PRLS, GROUND WATER IS DISCHARGING INTO LITTLE SIXMILE CREEK. THE CONTAMINANTS OF CONCERN, BENZENE AND VINYL CHLORIDE, HAVE NOT BEEN DETECTED IN WATER OR SEDIMENT SAMPLES TAKEN FROM THE STREAM. THE CURRENT PRACTICAL QUANTIFICATION LIMIT FOR THESE TWO COMPOUNDS IN WATER SAMPLES IS 1.0 PPB. THE MAXIMUM ALLOWABLE LEVEL IN THE SURFACE WATER WILL BE SET AT TWO ORDERS OF MAGNITUDE BELOW THIS NUMBER OR 0.01 PPB, PROVIDING ADDITIONAL ASSURANCE THAT THE COMPOUNDS WILL NOT BE DETECTED.

IN ORDER TO DEVELOP THE ACL, SOLUTE TRANSPORT MODELING WAS PERFORMED TO PREDICT THE ACL AT THE POINT OF COMPLIANCE (POC) OR THE EDGE OF THE LANDFILL. THE MODELING DEMONSTRATION INDICATED THAT NO CONTAMINANT

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CONCENTRATION REDUCTION IS EXPECTED BETWEEN POC AND THE POINT OF EXPOSURE (POE) UNDER A CONTINUOUS SOURCE SCENARIO OVER A 30-YEAR SIMULATION TIME. THEREFORE, CONSIDERING THE MIXING OF DISCHARGE INTO LITTLE SIXMILE CREEK THE ACL FOR BENZENE AND VINYL CHLORIDE WILL BE SET AT 115 PPB AT THE POC.

WHEN ARARS ARE NOT AVAILABLE FOR SPECIFIC COMPOUNDS OR EXPOSURE MEDIA (SUCH AS GROUNDWATER), THE CLEANUP GOALS ARE BASED ON NON-PROMULGATED ADVISORIES OR GUIDANCE SUCH AS THE PROPOSED FLORIDA RECOMMENDED MAXIMUM CONTAMINANT LEVEL GOALS (RMCLS), PROPOSED FEDERAL MCLGS, LIFETIME HEALTH ADVISORIES (HAS), AND REFERENCE DOSE (RFD) BASED GUIDELINES.

FEDERAL LOCATION-SPECIFIC ARARS FOR THE PRLS INCLUDE THE FOLLOWING:

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) LOCATION REQUIREMENTS - MANDATES THAT HAZARDOUS WASTE TREATMENT, STORAGE, OR DISPOSAL FACILITIES LOCATED WITHIN A 100-YEAR FLOODPLAIN MUST BE DESIGNED, CONSTRUCTED, OPERATED, AND MAINTAINED TO AVOID WASHOUT.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CLOSURE UNDER SUBTITLE D - BECAUSE THE STATE OF FLORIDA REQUIREMENTS FOR CLOSURE OF MUNICIPAL LANDFILLS (FAC 17-701.070) IS MORE STRINGENT THAN THE CLOSURE UNDER RCRA SUBTITLE D, THE PRLS WILL BE CLOSED UNDER FAC 17-701.070.

ENDANGERED SPECIES ACT - THE SELECTED REMEDY IS PROTECTIVE OF SPECIES LISTED AS ENDANGERED OR THREATENED UNDER THE ENDANGERED SPECIES ACT. REQUIREMENTS OF THE INTERAGENCY SECTION 7 CONSULTATION PROCESS, 50 CFR PART 402, WILL BE MET. THE DEPARTMENT OF INTERIOR, FISH AND WILDLIFE SERVICE, WILL BE CONSULTED DURING REMEDIAL DESIGN TO ASSURE THAT ENDANGERED OR THREATENED SPECIES ARE NOT ADVERSELY IMPACTED BY IMPLEMENTATION OF THIS REMEDY.

FISH AND WILDLIFE COORDINATION ACT - REQUIRES ADEQUATE PROTECTION OF FISH AND WILDLIFE IF ANY STREAM OR OTHER BODY OF WATER IS MODIFIED. ADDITIONALLY, ACTIONS IN WETLANDS ARE REQUIRED TO AVOID ADVERSE EFFECTS, MINIMIZE POTENTIAL HARM, AND RESTORE AND PRESERVE NATURAL AND BENEFICIAL VALUES.

NATIONAL HISTORICAL PRESERVATION ACT - REQUIRES THAT ACTION BE TAKEN TO PRESERVE OR RECOVER HISTORICAL OR ARCHAEOLOGICAL DATA WHICH MIGHT BE DESTROYED AS A RESULT OF SITE ACTIVITIES. THERE IS NO INFORMATION TO INDICATE THAT THE PRLS CONTAINS ANY HISTORIC OR ARCHAEOLOGICAL SIGNIFICANCE.

FEDERAL REGULATIONS THAT CONTAIN POTENTIAL ACTION-SPECIFIC ARARS FOR THE SITE ARE LISTED BELOW:

40 CFR SECTION 264.99 COMPLIANCE MONITORING PROGRAM - ESTABLISHES CRITERIA FOR MONITORING GROUND WATER QUALITY WHEN CONTAMINANTS HAVE BEEN DETECTED.

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FEDERAL AMBIENT WATER QUALITY CRITERIA (AWQC) - IS THE MAXIMUM CONCENTRATION FOR THE PROTECTION OF AQUATIC LIFE. THE AWQC MAY NOT BE INITIALLY MET. HOWEVER, THESE STANDARDS WILL BE ACHIEVED OVER A SHORT PERIOD OF TIME BECAUSE THE SOURCE OF CONTAMINATION (THE LANDFILL) WILL BE CAPPED.

RCRA LAND DISPOSAL RESTRICTIONS (LDRS) - ESTABLISHES RESTRICTIONS ON THE PLACEMENT OF RCRA HAZARDOUS WASTES. THE LDRS ARE APPLICABLE ONLY IF THE SOIL IS EXCAVATED AND REMOVED FROM SITE OR EXCAVATED AND TREATED.



FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION ACT (OSHA)

THE SELECTED REMEDIAL ACTION CONTRACTOR WILL DEVELOP AND IMPLEMENT A HEALTH AND SAFETY PROGRAM FOR ITS WORKERS. ALL ONSITE WORKERS WILL MEET THE MINIMUM TRAINING AND MEDICAL MONITORING REQUIREMENTS OUTLINED IN 40 CFR 1910.

STATE REGULATIONS THAT CONTAIN POTENTIAL ACTION SPECIFIC ARARS FOR THE SITE ARE LISTED BELOW:

FLORIDA ADMINISTRATIVE CODE CHAPTER 17-3 - THE FLORIDA ADMINISTRATIVE CODE CHAPTER 17-3, MAXIMUM CONTAMINANT LEVELS (MCL) FOR CLASS III SURFACE WATER BODIES, WILL BE MET.

FLORIDA ADMINISTRATIVE CODE CHAPTER 17-701.070 - INSTALLATION OF A PROTECTIVE COVER SYSTEM THAT COMPLIES WITH THE STATE OF FLORIDA REQUIREMENTS FOR CLOSURE OF MUNICIPAL LANDFILLS (FAC 17-701.070) WILL BE MET.

#### 10.3 COST EFFECTIVENESS

THE PRESENT ESTIMATED COST OF EPA'S SELECTED REMEDY IS \$9,935,000. THE SELECTED REMEDY AFFORDS OVERALL EFFECTIVENESS PROPORTIONAL TO ITS COSTS SUCH THAT THE REMEDY REPRESENTS A REASONABLE VALUE FOR THE MONEY. WHEN THE RELATIONSHIP BETWEEN COST AND OVERALL EFFECTIVENESS OF THE SELECTED REMEDY IS VIEWED IN LIGHT OF THE RELATIONSHIP BETWEEN COST AND OVERALL EFFECTIVENESS AFFORDED BY OTHER ALTERNATIVES, THE SELECTED REMEDY APPEARS TO BE COST EFFECTIVE.

#### 10.4 UTILIZATION OF PERMANENT SOLUTIONS AND ALTERNATIVE TREATMENT TECHNOLOGIES TO THE MAXIMUM EXTENT PRACTICABLE

THE US EPA BELIEVES THIS REMEDY IS THE MOST APPROPRIATE REMEDIATION SOLUTION FOR THE PRLS AND PROVIDES FOR THE BEST BALANCE AMONG THE EVALUATION CRITERIA FOR THE REMEDIAL ALTERNATIVES CONSIDERED. THE SELECTED REMEDY PROVIDES SHORT AND LONG TERM PROTECTION TO POTENTIAL HUMAN RECEPTORS, IS READILY IMPLEMENTED, AND IS COST EFFECTIVE.

ALTHOUGH SARA PROVIDES FOR EPA TO SELECT PERMANENT REMEDIES WHERE

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FEASIBLE, SOURCE CONTROL CANNOT BE EASILY ACCOMPLISHED AT THE PRLS DUE TO THE SATURATED CONDITIONS OF THE WASTE MATERIALS. EXCAVATION OF THESE MATERIALS WOULD REQUIRE THE REMOVAL OF ONE MILLION CUBIC YARDS OF SATURATED WASTE. THIS TECHNOLOGY WOULD NOT BE EASILY IMPLEMENTED, WOULD INCUR TREMENDOUS COSTS, AND IS NOT WARRANTED BY EXISTING CONDITIONS.

SEVERAL PHYSICAL LIMITATIONS HAVE BEEN IDENTIFIED AT THE PRLS THAT WOULD LIMIT THE IMPLEMENTABILITY AND EFFECTIVENESS OF GROUND WATER RECOVERY AND TREATMENT. AN ACTIVE OR PASSIVE GROUND WATER COLLECTION SYSTEM IF PLACED ALONG THE CREEK WOULD INHIBIT GROUND WATER FLOW FROM THE LANDFILL AREA TO THE STREAM. SUCH A SYSTEM WOULD LOWER THE WATER TABLE IN THE

AREA SUCH THAT ALL GROUND WATER DISCHARGE TO LITTLE SIXMILE CREEK WITHIN THE RADIUS OF THE INFLUENCE SYSTEM IS ELIMINATED.

TREATMENT WOULD REQUIRE THE DE-WATERING OF THE WASTE MATERIAL AS DEEP AS THE ROCK AQUIFER. CONSEQUENCES OF A RECOVERY SYSTEM WOULD INCLUDE THE NEED TO MANAGE THE DISCHARGE OF UP TO 5 MGD OF RECOVERED GROUND WATER, THE CREATION OF LARGE WATER LEVEL DECLINES, SIGNIFICANT IMPACT ON LOCAL STREAM FLOW, MOBILIZATION OF WASTE CONSTITUENTS VERTICALLY DOWNWARD INTO A WATER SUPPLY AQUIFER AND THE LOSS OF 5 MGD FROM A NATURAL RESOURCE.

THE SELECTED REMEDY, WHICH INVOLVES INSTALLING A CLAY LANDFILL COVER WITH GAS COLLECTION LAYER, EXTENDING THE CITY WATER MAIN, IMPLEMENTING INSTITUTIONAL CONTROLS AND CONTINUOUS GROUND WATER MONITORING, DOES NOT INCLUDE A TREATMENT TECHNOLOGY DUE TO THE MANY PHYSICAL CHARACTERISTICS OF THE PRLS.

#### 10.5 PREFERENCE FOR TREATMENT AS A PRINCIPAL ELEMENT

THE STATUTORY PREFERENCE FOR TREATMENT WILL NOT BE MET FOR THE SELECTED REMEDY FOR REASONS STATED IN THE PREVIOUS SECTION. TREATMENT WAS FOUND TO BE IMPRACTICAL BECAUSE OF THE EXTENT OF THE WASTE PRESENT AND OTHER PHYSICAL CHARACTERISTICS OF THE SITE AND ITS SURROUNDING AREA.

HOWEVER, THIS REMEDY WILL PREVENT FUTURE EXPOSURES FROM THE AFFECTED MEDIA AND PROTECT HUMAN HEALTH AND THE ENVIRONMENT.

#RS

#### RESPONSIVENESS SUMMARY

##### PICKETTVILLE ROAD LANDFILL JACKSONVILLE, DUVAL COUNTY, FLORIDA

THE US ENVIRONMENTAL PROTECTION AGENCY (EPA) ESTABLISHED A PUBLIC COMMENT PERIOD FROM JUNE 28, 1990 THROUGH JULY 27, 1990 FOR INTERESTED PARTIES TO COMMENT ON EPA'S PROPOSED PLAN FOR REMEDIATION FOR THE PICKETTVILLE ROAD LANDFILL SITE. ALSO, IN RESPONSE TO REQUESTS FROM THE AFFECTED COMMUNITY, EPA EXTENDED THE COMMENT PERIOD TO AUGUST 26, 1990. THE PUBLIC MEETING CONDUCTED ON JULY 12, 1990 WAS HELD AT THE PAXON HIGH

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SCHOOL IN JACKSONVILLE, FLORIDA. THE MEETING PRESENTED THE RESULTS OF THE STUDIES UNDERTAKEN AND THE PREFERRED ALTERNATIVE FOR THE SITE.

A RESPONSIVENESS SUMMARY IS REQUIRED BY SUPERFUND POLICY TO PROVIDE A SUMMARY OF CITIZEN COMMENTS AND CONCERNS ABOUT THE SITE RAISED DURING THE PUBLIC COMMENT PERIOD, AND THE RESPONSES TO THOSE CONCERNS. ALL COMMENTS SUMMARIZED IN THIS DOCUMENT HAVE BEEN FACTORED INTO THE FINAL DECISION OF THE PREFERRED ALTERNATIVE FOR CLEANUP OF THE PICKETTVILLE ROAD LANDFILL SITE (PRLS).

THIS RESPONSIVENESS SUMMARY FOR THE PICKETTVILLE ROAD LANDFILL SITE IS

DIVIDED INTO THE FOLLOWING SECTIONS.

- I. OVERVIEW - THIS SECTION DISCUSSES THE RECOMMENDED ALTERNATIVE FOR REMEDIAL ACTION AND THE PUBLIC REACTION TO THIS ALTERNATIVE.
- II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERNS - THIS SECTION PROVIDES A BRIEF HISTORY OF COMMUNITY INTEREST AND CONCERNS REGARDING THE PICKETTVILLE ROAD LANDFILL SITE.
- III. SUMMARY OF MAJOR QUESTIONS AND COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND FDER'S OR EPA'S RESPONSES - THIS SECTION PRESENTS BOTH ORAL AND WRITTEN COMMENTS SUBMITTED DURING THE PUBLIC COMMENT PERIOD, AND PROVIDES RESPONSES TO THESE COMMENTS.
- VI. REMAINING CONCERNS - THIS SECTION DISCUSSES COMMUNITY CONCERNS THAT EPA SHOULD BE AWARE OF IN DESIGN AND IMPLEMENTATION OF THE REMEDIAL ALTERNATIVE FOR THE SITE.

#### I. OVERVIEW

THE PREFERRED REMEDIAL ALTERNATIVE WAS PRESENTED TO THE PUBLIC IN A FACT SHEET RELEASED ON JUNE 28, 1990 AND AT A PUBLIC MEETING HELD ON JULY 12, 1990. THE RECOMMENDED ALTERNATIVE ADDRESSES THE SOURCE OF THE CONTAMINATION BY CONTAINING THE LANDFILL WASTES AND PREVENTING HUMAN EXPOSURE TO THE GROUND WATER. THE MAJOR COMPONENTS OF THE RECOMMENDED ALTERNATIVE INCLUDE:

- \* INSTALLATION OF A CLAY MUNICIPAL LANDFILL COVER WITH A GAS COLLECTION LAYER. THE FINAL COVER WILL PROMOTE SURFACE WATER RUNOFF, CONTROL POTENTIAL FUGITIVE VAPOR EMISSIONS AND MINIMIZE THE POTENTIAL FOR DIRECT CONTACT WITH THE LANDFILL MATERIAL;
- \* INSTALLATION OF A PERIMETER SECURITY FENCE TO RESTRICT UNAUTHORIZED ACCESS TO THE SITE;
- \* IMPLEMENTATION OF INSTITUTIONAL CONTROLS INCLUDING

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RESTRICTIONS THAT WILL LIMIT GROUND WATER USAGE AND REGULATE FUTURE DEVELOPMENT OF THE SITE;

- \* EXTEND THE CITY WATER MAIN TO RESIDENTS TO SUPPLY AN ALTERNATIVE DRINKING SOURCE AS A PRECAUTIONARY MEASURE TO MINIMIZE THE POTENTIAL FOR INGESTION OF GROUND WATER CONSTITUENTS;
- \* IMPLEMENTATION OF A PLUG AND ABANDONMENT PROGRAM FOR WATER SUPPLY WELLS IN THE AREA IMMEDIATELY NORTH OF THE SITE;

- \* IMPLEMENTATION OF A GROUND WATER MONITORING PROGRAM TO PERIODICALLY EVALUATE THE HYDROGEOLOGIC CONDITIONS AND QUALITY OF GROUND WATER UNDERLYING THE SITE.

THE COMMUNITY FAVORS THE ON-SITE INCINERATION ALTERNATIVE. THEIR COMMENTS AND AN ADDITIONAL EXPLANATION ARE ADDRESSED IN THE FOLLOWING SECTIONS.

## II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERN

THERE HAS BEEN LITTLE MEDIA ATTENTION FOCUSED ON THE PICKETTVILLE ROAD SITE. INFORMATION OBTAINED FROM ON-SITE DISCUSSIONS WITH LOCAL RESIDENTS REVEALED THAT THE HAZARDOUS WASTE ISSUE BECAME A FOCAL POINT OF COMMUNITY AWARENESS WHEN THE SITE WAS PLACED ON THE NATIONAL PRIORITIES LIST IN DECEMBER 1982. HEAVY MEDIA COVERAGE OF OTHER SITES IN THE AREA GENERATED PUBLICITY ABOUT WATER QUALITY, WHICH RESULTED IN INCREASED CONCERN AMONG RESIDENTS OVER THE QUALITY OF THEIR DRINKING WATER.

THE PICKETTVILLE CIVIC CLUB IS THE CITIZENS' GROUP THAT WAS FORMED IN 1983 AS A RESULT OF PUBLICITY OVER OTHER SITES IN THE AREA AND A REPORTED DECLINE IN THE QUALITY OF RESIDENTS' WATER.

THE PRIMARY CONCERN OF THE CIVIC CLUB AND THE RESIDENTS LIVING NEAR THE PICKETTVILLE ROAD SITE CENTERS ON THE POTENTIAL GROUND WATER CONTAMINATION AND THE DECLINING QUALITY OF THEIR DRINKING WATER.

## III. SUMMARY OF MAJOR QUESTIONS AND COMMENTS RECEIVED DURING THE PUBLIC COMMENT PERIOD AND EPA'S RESPONSES

1. RESIDENTS OF THE AREA HAVE REQUESTED THE IMPLEMENTATION OF ALTERNATIVE 5, ON-SITE INCINERATION, TO PROTECT THE HEALTH AND WELFARE OF THE PEOPLE OF THE PICKETTVILLE AREA.

EPA RESPONSE: EPA IS REQUIRED BY LAW TO SELECT A REMEDY FOR SUPERFUND SITES THAT IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT. THE REMEDY SELECTION PROCESS INVOLVES A COMPARISON OF EACH ALTERNATIVE WITH THE NINE EVALUATION CRITERIA ESTABLISHED BY THE AGENCY. THE NINE EVALUATION CRITERIA ARE PRESENTED IN EXHIBIT 1.

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THE FIRST STEP OF REMEDY SELECTION IS TO IDENTIFY THOSE ALTERNATIVES THAT SATISFY THE THRESHOLD CRITERIA. ONLY THOSE ALTERNATIVES THAT PROVIDE ADEQUATE PROTECTION OF HUMAN HEALTH AND THE ENVIRONMENT AND COMPLY WITH ENVIRONMENT LAWS ARE ELIGIBLE FOR SELECTION. ALTERNATIVES THAT DO NOT SATISFY THE THRESHOLD CRITERIA ARE NOT EVALUATED FURTHER. THE SECOND STEP INVOLVES THE BALANCING OF FIVE PRIMARY CRITERIA - LONG-TERM EFFECTIVENESS, (REDUCTION IN TOXICITY, MOBILITY, AND VOLUME), IMPLEMENTABILITY, SHORT-TERM EFFECTIVENESS, AND COST. THE FINAL STEP IS TO EVALUATE THE MODIFYING CRITERIA, WHICH IS STATE AND COMMUNITY ACCEPTANCE.

REMEDIAL ALTERNATIVES FOR THE PICKETTVILLE LANDFILL SITE WERE EVALUATED USING THE ABOVE CRITERIA. BOTH ON-SITE INCINERATION (ALTERNATIVE 5) AND THE LANDFILL CLOSURE (ALTERNATIVE 3) MET THE THRESHOLD CRITERIA. HOWEVER, DURING THE SECOND STEP, ON-SITE INCINERATION WAS NOT DETERMINED TO BE THE MOST EFFECTIVE ALTERNATIVE FOR REMEDIATION FOR THE FOLLOWING REASONS:

- A. INCINERATION INVOLVES CONTAMINANT DESTRUCTION BY COMBUSTION AT VERY HIGH TEMPERATURES. IT IS CONSIDERED A PROVEN TECHNOLOGY FOR ORGANICS, BUT THE METALS PRESENT IN THE SOIL WILL FORM TOXIC METAL OXIDES WHICH WOULD BE DIFFICULT TO REMOVE.
- B. ON-SITE INCINERATION WILL REQUIRE ADHERENCE TO STRICT OPERATION PROCEDURES TO PROTECT THE COMMUNITY AND ON-SITE WORKERS DURING REMEDIATION ACTIVITIES. THIS ALTERNATIVE WOULD REQUIRE A VERY STRINGENT MONITORING AND HEALTH AND SAFETY PLAN DUE TO THE NATURE OF THE TECHNOLOGY.
- C. THE EXTENSIVE EXCAVATION AND ON-SITE INCINERATION ACTIVITIES MAY POSE A RISK TO ON-SITE WORKERS, THE COMMUNITY, AND THE ENVIRONMENT TO POTENTIALLY ADVERSE CONDITIONS FOR A PERIOD OF SEVEN YEARS.
- D. INCINERATION IS NOT COST-EFFECTIVE. COST-EFFECTIVENESS IS DETERMINED BY COMPARING THE COSTS OF ALL THE ALTERNATIVES BEING CONSIDERED WITH THEIR OVERALL EFFECTIVENESS TO DETERMINE WHETHER THE COSTS ARE PROPORTIONAL TO THE EFFECTIVENESS ACHIEVED. IN RESPECT TO EFFECTIVENESS, LANDFILL CLOSURE IS VERY COMPATIBLE TO INCINERATION IN THAT ALL EXPOSURE PATHWAYS ARE ADDRESSED FOR A MUCH LOWER COST. EPA COULD NOT JUSTIFY A \$301 MILLION DOLLAR REMEDY WHEN A \$9.9 MILLION DOLLAR REMEDY WOULD MEET THE SAME REMEDIAL ACTION OBJECTIVE.

IN COMPARISON TO THE EVALUATION CRITERIA, INCINERATION WAS NOT DETERMINED TO BE THE MOST EFFECTIVE ALTERNATIVE FOR REMEDIATION OF THE SITE.

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EPA'S PREFERRED ALTERNATIVE FOR THE PICKETTVILLE LANDFILL SITE IS ALTERNATIVE 3, WHICH CONSISTS OF THE CONSTRUCTION OF A CLAY LANDFILL COVER WITH A PASSIVE GAS COLLECTION LAYER. INSTALLATION OF A CLAY LANDFILL COVER, WOULD PREVENT POTENTIAL EXPOSURE TO THE LANDFILL WASTE. THIS ALTERNATIVE WOULD PROVIDE IMMEDIATE PROTECTION TO THE RISKS POSED FROM THE SITE BY ELIMINATING THE EXPOSURE ROUTES OF DIRECT CONTACT WITH THE LANDFILL MATERIALS.

ALTERNATIVE 3 ALSO INCLUDES THE EXTENSION OF THE CITY WATER MAIN, CONTINUOUS GROUND WATER MONITORING, AND THE PLUGGING AND ABANDONMENT OF

POTABLE WATER SUPPLY WELLS. GROUND WATER SAMPLES FROM PRIVATE WELLS IN THE VICINITY OF THE SITE WERE COLLECTED IN AUGUST 1990 BY THE STATE OF FLORIDA DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES. THIS INFORMATION IN CONJUNCTION WITH THE DESIGN DATA WILL BE USED TO DETERMINE WHICH WELLS NEED TO BE ABANDONED. THE SPECIFIC WELLS TO BE ABANDONED WILL BE DETERMINED DURING THE REMEDIAL DESIGN PHASE.

RESTORATION OF THE LITTLE SIXMILE CREEK WILL BE CONDUCTED TO REMOVE WASTE WHICH HAVE MIGRATED FROM THE SITE INTO THE CREEK. WASTE DEPOSITED ALONG BOTH SIDES OF LITTLE SIXMILE CREEK WILL BE REMOVED TO A MINIMUM OF FIVE FEET FROM THE CREEK BED OR THE 100-YEAR FLOODPLAIN, WHICH EVER IS GREATER, AND DEPOSITED ON-SITE IN THE LANDFILL. AN ECOLOGICAL STUDY OF LITTLE SIXMILE CREEK WILL BE CONDUCTED TO DETERMINE IF ANY NEGATIVE ENVIRONMENTAL IMPACTS TO THE CREEK HAVE OCCURRED. IN THE EVENT THAT THE ECOLOGICAL STUDY REVEALS CONTAMINATION WHICH MAY IMPAIR THE ECOLOGICAL COMMUNITY, ADDITIONAL REMEDIAL ACTIONS FOR THE CREEK MAY BE NECESSARY.

ALTERNATIVE 3 IS PROTECTIVE OF HUMAN HEALTH AND THE ENVIRONMENT, AND COMPLIES WITH ALL FEDERAL AND STATE ENVIRONMENTAL LAWS. THE COST FOR ALTERNATIVE 3 IS \$9,935,000.

AFTER EPA HAS SELECTED THE REMEDY, EPA WILL NEGOTIATE WITH THE POTENTIALLY RESPONSIBLE PARTIES (PRPS) TO IMPLEMENT THE DESIGN,

CONSTRUCTION AND OPERATION AND MAINTENANCE TASKS THAT ARE ASSOCIATED WITH THE REMEDY. IF THE PRPS CHOOSE NOT TO IMPLEMENT THE REMEDY, EPA HAS THE OPTION OF ORDERING THE PRPS TO CONDUCT THE WORK, FILE A CIVIL SUIT SEEKING A COURT INJUNCTION ORDERING THEM TO CONDUCT THE WORK, OR CONDUCT THE WORK UTILIZING FEDERAL FUNDS WHICH WILL INCLUDE FILING A COST RECOVERY ACTION AGAINST THE PRPS.

2. SEVERAL CITIZENS HAVE NOTED A GRADUAL DETERIORATION IN THE QUALITY OF THEIR DRINKING WATER.

EPA RESPONSE: GROUNDWATER CONTAMINATION HAS BEEN CONFIRMED THROUGH MULTIPLE SAMPLING EPISODES IN THE SURFICIAL AQUIFER NEAR MONITOR WELL SMW-4. ALTERNATE CONCENTRATION LIMITS (ACLs) WERE DEVELOPED FOR BENZENE AND VINYL CHLORIDE AND LONG-TERM MONITORING WILL BE UNDERTAKEN TO ASSURE THAT THE ACLs ARE NOT EXCEEDED. HOWEVER, THE MONITOR WELLS AT OTHER

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LOCATIONS AROUND THE PRLS SHOW SIGNS THAT THE WATER QUALITY IN THE SURFICIAL AQUIFER IS DEGRADED DUE TO THE WASTE MATERIALS. ALSO, THERE ARE SEVERAL INDUSTRIAL FACILITIES LOCATED IN THE PICKETTVILLE AREA THAT MAY BE AFFECTING THE QUALITY OF THE GROUND WATER. THE FLORIDA DEPARTMENT OF ENVIRONMENTAL REGULATION HAS BEEN INFORMED OF REPORTS OF DUMPING INTO AREA CREEKS AND THE FLORIDA DEPARTMENT OF HEALTH AND REHABILITATIVE SERVICES IS CURRENTLY SAMPLING RESIDENTIAL WELLS IN THE PICKETTVILLE AREA. HOPEFULLY, THROUGH THESE EFFORTS THE CAUSE OF THE POOR WATER QUALITY CAN BE DETERMINED AND RECTIFIED.

3. MANY RESIDENTS EXPLAINED THAT SIXMILE CREEK IS TIDALLY INFLUENCED AND

OFTEN FLOODS DURING HEAVY RAIN.

EPA RESPONSE: SIXMILE CREEK AND PORTIONS OF LITTLE SIXMILE CREEK, WHICH RUNS ADJACENT TO THE LANDFILL, ARE TIDALLY INFLUENCED FRESHWATER TRIBUTARIES OF THE RIBAUT RIVER. CONTAMINANTS HAVE BEEN DETECTED IN SURFACE WATER AND SEDIMENT SAMPLES FROM THE LITTLE SIXMILE CREEK OVER THE STRETCH ALONG THE PRLS.

EPA HAS TAKEN INTO CONSIDERATION THE ISSUE OF TIDAL INFLUENCE, AND RESTORATION OF THE LITTLE SIXMILE CREEK WILL BE CONDUCTED TO REMOVE WASTE WHICH HAVE MIGRATED FROM THE SITE INTO THE CREEK. WASTE DEPOSITED ALONG BOTH SIDES OF THE LITTLE SIXMILE CREEK WILL BE REMOVED TO A MINIMUM OF FIVE FEET FROM THE CREEK BED OR THE 100-YEAR FLOOD PLANE, WHICH EVER IS GREATER, AND DEPOSITED ON-SITE IN THE LANDFILL. AN ECOLOGICAL STUDY OF LITTLE SIXMILE CREEK WILL BE CONDUCTED TO DETERMINE IF ANY NEGATIVE ENVIRONMENTAL IMPACTS TO THE CREEK HAVE OCCURRED.

4. ONE CITIZEN ATTRIBUTED THE DEATH OF TREES ON HER PROPERTY TO THE LANDFILL.

EPA RESPONSE: THE DEATH OF TREES NORTH OF THE SITE MAY BE DUE TO THE HYDRAULIC MOUNDING OF THE LANDFILL WHICH PREVENTS WATER FLOW TO THOSE AREAS NORTH OF THE SITE. ALSO, THERE ARE OTHER POTENTIAL SOURCES OF CONTAMINANTS LOCATED IN AREAS TO THE NORTH OF THE PRLS THAT COULD PROVIDE ADDITIONAL IMPACTS TO THE ENVIRONMENT IN THIS AREA.

5. MANY RESIDENTS EXPRESSED CONCERN OVER THE "HEALTH" OF THE NEIGHBORHOOD.

EPA RESPONSE: ACCORDING TO THE RISK ASSESSMENT STUDIES, THERE ARE TWO EXPOSURE ROUTES IN WHICH THE PUBLIC MAY BE AFFECTED BY THE LANDFILL. THEY ARE DERMAL CONTACT WITH SURFACE SOILS AND THE INGESTION OF GROUND WATER. THE PROPOSED REMEDY WILL ELIMINATE BOTH OF THESE RISKS BY PREVENTING EXPOSURE TO THE LANDFILL SOIL/WASTE AND GROUND WATER; THEREFORE, HUMAN HEALTH WILL BE PROTECTED IN THE FUTURE.

6. THERE ARE CLAIMS THAT THE FORMER SAND BORROW PIT CONTAINED WASTE THAT WAS DEPOSITED 100 FEET DEEP.

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EPA RESPONSE: HISTORICAL PHOTOS OF THE SITE DO NOT INDICATE THAT THE BORROW PIT APPROACHED 100 FEET IN DEPTH. ON-SITE BORINGS CONDUCTED DURING THE REMEDIAL INVESTIGATION ONLY CONFIRMED WASTE TO 20 FEET IN TOTAL DEPTH. DUE TO THE SHALLOW WATER TABLE IN A SILTY SAND UNIT, IT WOULD BE EXTREMELY DIFFICULT TO QUARRY IN THIS AREA TO DEPTHS EXCEEDING 20 FEET. HOWEVER, TO ADDRESS THIS CONCERN, ADDITIONAL DEEP MONITORING WELLS WILL BE INSTALLED DURING THE PRE-DESIGN PHASE OF THE REMEDIAL DESIGN. THESE WELLS WILL BE STRATEGICALLY PLACED TO DETECT ANY CONTAMINATION THAT MAY BE ORIGINATING FROM THESE AREAS.

7. THERE ARE CONCERNS OVER THE LACK OF AQUATIC LIFE IN LITTLE SIXMILE

CREEK.

EPA RESPONSE: THE LACK OF AQUATIC LIFE IN LITTLE SIXMILE CREEK MAY BE DUE TO AN OXYGEN DEFICIENCY THAT IS PRESENT IN THE CREEK. THE DEFICIENCY MAYBE DUE TO A HYDRAULIC COMPLICATION. THE SECONDARY CHANNEL THAT HAS BEEN DUG DOES NOT ALLOW CONTINUOUS FLOW OF THE CREEK WHICH PREVENTS THE PRODUCTION OF OXYGEN IN THE WATER. AGAIN, AN ECOLOGICAL STUDY OF LITTLE SIXMILE CREEK WILL BE CONDUCTED TO DETERMINE IF ANY NEGATIVE ENVIRONMENTAL IMPACTS TO THE CREEK HAVE OCCURRED.

8. SOME CITIZENS OF THE AREA QUESTIONED THE COST OF ALTERNATIVE 3 (\$9,935,000) AND LONG-TERM MAINTENANCE OF THE SITE IF THIS REMEDY IS IMPLEMENTED.

EPA RESPONSE: THE PRESENT WORTH COST OF ALTERNATIVE 3 (\$9,935,000) INCLUDES THE ESTIMATED CAPITAL COST (\$7,803,600) AND THE OPERATION AND MAINTENANCE COSTS OVER A 20 YEAR PERIOD (\$2,131,700). OPERATION AND MAINTENANCE WILL INCLUDE CONTINUOUS GROUND WATER MONITORING OF THE AREA, LANDFILL CAP MAINTENANCE, AND PERIMETER FENCE MAINTENANCE.

9. MANY RESIDENTS HAVE REQUESTED THAT EPA PERFORM THE CLEANUP WITH THE INCLUSION OF ALL DUMP SITES IN THE JACKSONVILLE AREA INSTEAD OF ADDRESSING EACH SITE SEPARATELY.

EPA RESPONSE: EPA DOES NOT HAVE THE AUTHORITY TO ALLOCATE FEDERAL FUNDS FOR SUPERFUND SITES TO OTHER SITES THAT ARE NOT ON THE NATIONAL PRIORITIES LIST (NPL) NOR TO FEDERAL FACILITY SITES. EPA IS CURRENTLY ADDRESSING CONTAMINATION AT ALL SITES IN THE JACKSONVILLE AREA LISTED ON THE NPL.

10. THERE ARE CONCERNS BY CITIZENS OVER THE DIMINISHING WILDLIFE COMMUNITY IN THE PRLS AND SIXMILE CREEK AREA. ONE CITIZEN EXPRESSED CONCERN FOR THE EASTERN CRESTED HEADED WOODPECKER, WHICH WAS CLAIMED TO BE ON THE ENDANGERED SPECIES LIST.

EPA RESPONSE: BASED ON THE INFORMATION CURRENTLY AVAILABLE TO THE EPA, THE EASTERN CRESTED HEADED WOODPECKER IS NOT ON THE ENDANGERED SPECIES LIST IN THE STATE OF FLORIDA. IN ADDITION, THE PREFERRED REMEDY WOULD ELIMINATE THE THREAT TO WILDLIFE IN THE AREA THAT WAS POSED BY THE

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PICKETTVILLE SITE.

11. SEVERAL RESIDENTS INQUIRED ABOUT SUGGESTION FOR OBTAINING THE 20 PERCENT MATCH FOR THE TECHNICAL ASSISTANCE GRANT (TAG).

EPA RESPONSE: EPA RECOGNIZES THAT LESS POPULATED AREAS WITH MODERATE INCOME HOUSEHOLDS MAY NOT BE ABLE TO RAISE THE ENTIRE MATCH. SINCE THE PURPOSE OF THESE GRANTS IS TO ENABLE JUST SUCH A COMMUNITY TO HIRE AN ADVISOR TO REVIEW AND INTERPRET SUPERFUND DOCUMENTS FOR THE COMMUNITY, EPA ALLOWS THE SUBSTITUTION OF IN-KIND, OR NON-CASH, CONTRIBUTIONS FOR ALL OR PART OF THE REQUIRED MATCH. IN-KIND CONTRIBUTIONS INCLUDE



VOLUNTEER SERVICES BY MEMBERS OF YOUR ASSOCIATION OR COMMUNITY TO CONDUCT ACTIVITIES UNDER THE GRANT, SUCH AS BOOKKEEPING/ACCOUNTING TO MAINTAIN GRANT FINANCIAL RECORDS AND PREPARE REQUIRED REPORTS; AUDITING OF YOUR GROUP'S FINANCIAL RECORDS; DRAFTING OR EDITING CONTRACT FOR PROPOSAL OR CONTRACT TO PROCURE THE ADVISOR; YOUR PROJECT MANAGER'S OVERSEEING THE TECHNICAL ADVISOR; PREPARING LETTERS OR COMMENTS TO THE AGENCY INCORPORATING THE ADVISOR'S RECOMMENDATIONS; EDITING OR DISTRIBUTING NEWSLETTERS TO THE COMMUNITY; OR COPYING DOCUMENTS TO PROVIDE TO THE TECHNICAL ADVISOR. NON-CASH CONTRIBUTIONS CAN ALSO INCLUDE EQUIPMENT USE (COPIERS OR WORD PROCESSORS); SUPPLIES (SUCH AS PENCILS, COMPUTER DISKS, PAPER, OR ENVELOPES); TELEPHONE CALLS OR POSTAGE; PHOTOCOPYING OR PRINTING DONATED BY GROUP MEMBERS OR TO THE GROUP; PUBLICATION OF NOTICE SEEKING QUALIFIED ADVISOR; OR FEES FOR PUBLIC MEETING FACILITIES FOR MEETINGS TO KEEP COMMUNITY INFORMED.

12. LOCAL CITIZENS PETITIONED THE EPA TO EXTEND THE PUBLIC COMMENT PERIOD AND TO REQUEST THAT EPA ENFORCE THE CITY OF JACKSONVILLE TO SUPPLY AN ALTERNATE WATER SUPPLY SYSTEM TO THE PICKETTVILLE AREA.

EPA RESPONSE: THE REQUEST TO EXTEND THE PUBLIC COMMENT PERIOD WAS GRANTED BY THE EPA. HOWEVER, THE LATTER REQUEST MUST BE PURSUED WITH THE CITY OF JACKSONVILLE OFFICIALS. BASED ON OUR FINDINGS, THERE IS NO BASIS FOR AN ALTERNATE SUPPLY SYSTEM EXCEPT IN THE AREA OF THE GROUNDWATER PLUME.

THE FOLLOWING COMMENTS WERE SUBMITTED BY THE PICKETTVILLE ROAD LANDFILL SITE (PRLS) STEERING COMMITTEE CONCERNING THE AGENCY'S CHANGES TO THE RISK ASSESSMENT (RA) SUBMITTED BY GERAGHTY AND MILLER.

1.) THE COMMENTER STATED THAT EPA DELETED FROM THE GERAGHTY AND MILLER RA THE FACT THAT ACETONE, ETHYLBENZENE, BIS(2-ETHYLHEXYL)PHTHALATE (BEHP), AND METHYLENE CHLORIDE WERE DETECTED IN THE TRIP AND FIELD BLANKS AT CONCENTRATIONS COMPARABLE TO THE SAMPLES FROM THE SITE.

EPA RESPONSE: RISK ASSESSMENT GUIDANCE FOR SUPERFUND, HUMAN HEALTH EVALUATION MANUAL, EPA 1989, (RAGS) SPECIFIES THAT IF CHEMICALS WHICH ARE CONSIDERED TO BE COMMON LABORATORY CONTAMINANTS, ARE DETECTED IN A BLANK SAMPLE, THEN THE SITE SAMPLES ASSOCIATED WITH THE BLANK SAMPLES SHOULD EXCEED THE CONCENTRATION DETECTED IN THE BLANK SAMPLE BY AT LEAST

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TEN TIMES TO BE CONSIDERED A POSITIVE RESULT. FOR OTHER CONTAMINANTS DETECTED IN THE BLANK WHICH ARE NOT CONSIDERED TO BE COMMON LABORATORY CONTAMINANTS, THE SITE SAMPLES SHOULD EXCEED THE BLANK BY FIVE TIMES TO BE CONSIDERED A POSITIVE RESULT. THE SITE CHEMICALS DETECTED IN THE BLANKS WHICH ARE CLASSIFIED AS COMMON LABORATORY CONTAMINANTS ARE ACETONE, BEHP, AND METHYLENE CHLORIDE. EPA DOES NOT OBJECT TO THE COMPARISON OF THE SITE CONTAMINANTS WITH THE CHEMICALS CONTAINED IN THE ASSOCIATED BLANK SAMPLES. THESE CHEMICALS WERE NOT EXCLUDED FROM THE RISK CALCULATIONS AND THE RA SHOULD DISCUSS POTENTIAL SOURCES OF UNCERTAINTY. THE COMPARISON BETWEEN BLANKS AND SITE SAMPLES, IN THE GERAGHTY AND MILLER RA, WILL NOT BE DELETED FROM THE FINAL AGENCY

APPROVED RA.

2.) THE COMMENTER STATED THAT EPA DELETED FROM THE GERAGHTY AND MILLER RA A REFERENCE TO THE FEDERAL WATER QUALITY CRITERIA (FWQC) NOT CONSTITUTING AN APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENT (ARAR).

EPA RESPONSE: AS HAS BEEN STATED IN CORRESPONDENCE WITH THE PRLS STEERING COMMITTEE, THE FWQC (FOR THE PROTECTION OF AQUATIC LIFE AND HUMAN HEALTH) ARE CONSIDERED TO BE RELEVANT AND APPROPRIATE FOR GROUNDWATER IF THE GROUNDWATER IS DISCHARGING TO SURFACE WATER (AS IS THE CASE AT THE PRLS) AND THE SURFACE WATER IS BEING USED FOR PURPOSES FOR WHICH THE FWQC IS DESIGNATED TO PROTECT. IN ADDITION, THE PREAMBLE TO THE DECEMBER 21, 1988 PROPOSED REVISIONS TO THE NCP, DISCUSSES THE RELEVANCY AND APPROPRIATENESS OF FWQC IN REGARD TO THEIR USE AS ARARS FOR GROUNDWATER AS A DRINKING WATER SOURCE. (THE INTRODUCTION TO THE FINAL NCP, MARCH 1990, STATES THAT THE PREAMBLE TO THE PROPOSED NCP REFLECTS EPA'S INTENT IN THE FINAL NCP, UNLESS THE FINAL NCP DIRECTLY CONTRADICTS THE PROPOSED PREAMBLE.) THE PREAMBLE STATES THAT "... WHEN A PROMULGATED MCL EXISTS, THE FWQC FOR THAT CONSTITUENT WOULD NOT BE RELEVANT AND APPROPRIATE IN WATER THAT IS A POTENTIAL DRINKING WATER SOURCE. HOWEVER, WHEN MCLS ARE NOT AVAILABLE, A FWQC MAY BE RELEVANT AND APPROPRIATE IN WATER THAT IS A POTENTIAL DRINKING WATER SOURCE." STATE WATER QUALITY STANDARDS TAKE PRECEDENCE OVER MCLS AND FWQC. TO BE RELEVANT AND APPROPRIATE, FWQC MUST ALSO BE BASED ON CURRENT SCIENTIFIC TOXICITY VALUES I.E. CURRENT RFDS AND POTENCY FACTORS, AND MUST BE ADJUSTED TO REFLECT ONLY EXPOSURE FROM DRINKING THE WATER. IN SUMMARY, A FWQC COULD BE CONSIDERED TO BE RELEVANT AND APPROPRIATE FOR THE CONSUMPTION OF GROUNDWATER FOR A SPECIFIC CONSTITUENT IF NO MCL OR STATE WATER QUALITY STANDARD EXISTS, THE FWQC HAS BEEN ADJUSTED FOR DRINKING WATER CONSUMPTION ONLY AND THE FWQC IS DERIVED FROM CURRENT SCIENTIFIC INFORMATION. BASED ON THE PRECEDING DISCUSSION, THE FWQC SHOULD BE CLASSIFIED AS RELEVANT AND APPROPRIATE FOR GROUNDWATER AT THIS SITE. THIS DISCUSSION WILL BE CONTAINED IN AN ADDENDUM TO THE RA.

3.) THE COMMENTER INQUIRED ABOUT USING UNFILTERED GROUNDWATER SAMPLE DATA VERSUS FILTERED GROUNDWATER SAMPLE DATA.

EPA RESPONSE: EPA GUIDANCE (RAGS) FOR RISK ASSESSMENTS FOR ALL REGIONS

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CLEARLY STATES THAT UNFILTERED SAMPLES SHOULD BE USED FOR RISK ASSESSMENT PURPOSES. RAGS STATES THE FOLLOWING: "WHILE FILTRATION OF GROUNDWATER SAMPLES PROVIDES USEFUL INFORMATION FOR UNDERSTANDING CHEMICAL TRANSPORT WITHIN AN AQUIFER, THE USE OF FILTERED SAMPLES FOR ESTIMATING EXPOSURES IS VERY CONTROVERSIAL BECAUSE THESE DATA MAY UNDERESTIMATE CHEMICAL CONCENTRATIONS IN WATER FROM AN UNFILTERED TAP. THEREFORE, DATA FROM UNFILTERED SAMPLES SHOULD BE USED TO ESTIMATE EXPOSURE CONCENTRATIONS." ALTHOUGH MCLS WERE PROMULGATED FOR PUBLIC WATER SYSTEMS AND ARE CONSIDERED TO BE APPLICABLE FOR SUCH SYSTEMS THEY ARE ALSO CONSIDERED TO BE RELEVANT AND APPROPRIATE FOR PRIVATE WELLS. IT APPEARS TO BE A MOOT POINT AS TO WHETHER MCLS SHOULD BE COMPARED TO

FILTERED OR UNFILTERED SAMPLES. THEY SHOULD BE COMPARED TO SAMPLES THAT WILL BE REPRESENTATIVE OF THE SAMPLES TO WHICH INDIVIDUALS WILL BE POTENTIALLY EXPOSED. IN ADDITION, THE WATER SAMPLES FOR THE RISK ASSESSMENT SHOULD REPRESENT THE CONCENTRATION TO WHICH AN INDIVIDUAL COULD BE POTENTIALLY EXPOSED. INDIVIDUALS WITH A PRIVATE WELL COULD BE EXPOSED TO WATER FROM AN UNFILTERED TAP AND THE USE OF FILTERED SAMPLES COULD UNDERESTIMATE THE RISK TO THIS INDIVIDUAL.

4.) THE COMMENTER INQUIRED WHETHER BENZENE AND VINYL CHLORIDE SHOULD BE CONSIDERED SITE-RELATED CONTAMINATION BECAUSE THEY WERE ONLY DETECTED IN AN OFFSITE WELL.

EPA RESPONSE: THE ISSUE OF WHETHER A CHEMICAL IS SITE-RELATED IS NOT A RISK ASSESSMENT ISSUE. THE CHEMICAL IS STILL CONTRIBUTING TO THE TOTAL SITE RISK FOR A POTENTIALLY EXPOSED INDIVIDUAL REGARDLESS OF THE SOURCE OF THE CHEMICAL. THE ISSUES OF CONTAMINANT ORIGIN AND RESPONSIBILITY ARE RESOLVED OUTSIDE THE REALM OF THE RISK ASSESSMENT. IN ADDITION, THE CONCERN HAS BEEN RAISED THAT THE QUANTITATION LIMIT USED FOR BENZENE IS HIGHER THAN THE GROUNDWATER ARAR FOR BENZENE. SO, POTENTIALLY THERE COULD BE ONSITE WELLS, WHICH EXCEED THE ARAR FOR BENZENE, BUT ARE BELOW THE QUANTITATION LIMIT. EPA DOES NOT OBJECT TO THE DISCUSSION OF THE POTENTIAL SOURCE OF SITE CONTAMINATION IN THE RA AS LONG AS THE POTENTIAL ONSITE CONTAMINANTS ARE NOT EXCLUDED FROM THE RISK CHARACTERIZATION.

5.) THE COMMENTER INQUIRED WHY EPA DELETED FROM THE RA THE CONCLUSION THAT CONCENTRATIONS OF CONTAMINANTS IN SURFACE WATER AND SEDIMENTS WOULD BE EXPECTED TO DECREASE DOWNSTREAM OF THE PRLS "UNLESS ANOTHER SOURCE EXISTS."

EPA RESPONSE: STREAM CHARACTERISTICS E.G. FLOW AND BOTTOM TYPE CAN INFLUENCE STREAM CONCENTRATIONS. CONSTITUENT CONCENTRATIONS COULD BE SIGNIFICANTLY HIGHER FURTHER DOWNSTREAM IF THE BOTTOM IS VERY ROCKY, ESPECIALLY AT SETTLING POINTS WHERE FLOW IS DECREASED AND CONTAMINATED SEDIMENT SETTLES OUT. THE ADDENDUM TO THE RA WILL DISCUSS THIS ISSUE.

6.) THE COMMENTER INQUIRED WHY EPA DELETED FROM THE RA A REFERENCE TO THE SIMILARITY BETWEEN THE OCCURRENCE AND CONCENTRATIONS OF CHEMICAL CONTAMINANTS AT THE PRLS AND OTHER FLORIDA LANDFILLS.

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EPA RESPONSE: EPA FEELS THAT THE PURPOSE OF THIS COMMENT IS TO DOWNPLAY THE POTENTIAL HAZARDS ASSOCIATED WITH THIS SITE BECAUSE IT IS PROBABLY SIMILAR IN COMPOSITION TO MANY FLORIDA (NON-SUPERFUND) LANDFILLS. HOWEVER, EPA WOULD LIKE TO POINT OUT THAT THERE ARE ALSO MANY LANDFILLS IN THE STATE OF FLORIDA WHICH ARE SUPERFUND SITES. EPA DOES NOT THINK THAT THIS COMMENT SERVES ANY PURPOSE IN THE RA. THIS DISCUSSION WILL BE INCLUDED IN AN ADDENDUM TO THE RA.

7.) THE COMMENTER MADE REFERENCE TO OTHER REGIONS UTILIZING FILTERED DATA FOR RISK ASSESSMENT PURPOSES.

EPA RESPONSE: THE RISK ASSESSMENT GUIDANCE FOR ALL REGIONS STATES THAT UNFILTERED SAMPLES SHOULD BE USED FOR RISK ASSESSMENT PURPOSES (SEE EPA'S RESPONSE TO COMMENT 3).

9.) THE COMMENTER INQUIRED WHY EPA DELETED FROM THE RA THE SIGNATURES OF THE STAFF OF GERAGHTY & MILLER, INC., ALTHOUGH IT RETAINED THE GERAGHTY & MILLER FOOTER ON EACH PAGE OF THE TEXT.

EPA RESPONSE: THE SIGNATURE PAGE WILL BE RETURNED TO THE DOCUMENT. HOWEVER, THE GERAGHTY AND MILLER FOOTER BRINGS INAPPROPRIATE RECOGNITION TO THE CONTRACTOR IN A DOCUMENT PREPARED AND APPROVED UNDER AGENCY OVERSIGHT. A STATEMENT TO THE EFFECT WILL BE INCLUDED IN THE RA ADDENDUM.

#### IV. REMAINING CONCERNS

THE COMMUNITY'S CONCERNS SURROUNDING THE PICKETTVILLE ROAD LANDFILL SITE WILL BE ADDRESSED IN THE FOLLOWING AREAS:

COMMUNITY RELATIONS SUPPORT THROUGHOUT THE REMEDIAL DESIGN/REMEDIAL ACTION, AND INCORPORATION OF COMMENTS/SUGGESTIONS IN THE REMEDIAL DESIGN.

COMMUNITY RELATIONS WILL CONSIST OF MAKING AVAILABLE FINAL DOCUMENTS (I.E. REMEDIAL DESIGN WORK PLAN, REMEDIAL DESIGN REPORTS, ETC.) IN A TIMELY MANNER TO THE LOCAL REPOSITORY. ALSO, ISSUANCE OF FACT SHEETS TO THOSE ON THE MAILING LIST WILL FURTHER PROVIDE THE COMMUNITY WITH PROJECT PROGRESS AND A SCHEDULE OF EVENTS. THE COMMUNITY WILL BE MADE AWARE OF ANY PRINCIPAL DESIGN CHANGES MADE DURING THE PROJECT DESIGN. IF AT ANY TIME DURING THE REMEDIAL DESIGN OR REMEDIAL ACTION NEW INFORMATION IS REVEALED THAT COULD AFFECT THE IMPLEMENTATION OF THE REMEDY OR IF THE REMEDY FAILS TO ACHIEVE THE NECESSARY DESIGN CRITERIA, THE RECORD OF DECISION MAY BE REVISED TO INCORPORATE NEW TECHNOLOGY THAT WILL ATTAIN THE NECESSARY PERFORMANCE CRITERIA. COMMUNITY RELATIONS ACTIVITIES WILL REMAIN AN ACTIVE ASPECT OF THE REMEDIAL DESIGN/REMEDIAL ACTION PHASE OF THIS PROJECT.

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#### TABLE 3-1

#### CHEMICALS OF CONCERN PICKETTVILLE ROAD LANDFILL SITE

#### SURFICIAL SOIL

ARSENIC  
BARIUM  
CHROMIUM

SELENIUM  
BIS(2-ETHYLHEXYL)PHTHALATE  
FLOURANTHENE

LEAD  
MERCURY

FLOURENE  
PHENANTHRENE

GROUND WATER

ARSENIC  
BARIUM  
LEAD  
MERCURY  
NICKEL  
ACETONE

BENZENE  
TOLUENE  
VINYL CHLORIDE  
BIS(2-ETHYLHEXYL)PHTHALATE  
DELTA-BHC  
CYANIDE

SEDIMENT

ARSENIC  
BARIUM  
LEAD  
MERCURY  
SELENIUM

ACETONE  
2-BUTANONE  
CARBON DISULFIDE  
METHYLENE CHLORIDE  
BIS (2-ETHYLHEXYL)PHTHALATE

SURFACE WATER

METHYLENE CHLORIDE

BIS(2-ETHYLHEXYL)PHTHALATE

TABLE 6-1  
EXPOSURE POINT CONCENTRATIONS FOR CONTAMINANTS OF CONCERN\*

MEDIA

CHEMICAL

SURFICIAL  
AQUIFER  
(MG/L)

ROCK  
AQUIFER  
(MG/L)

METALS

ARSENIC

2.3E-02

BARIUM

1.5E-01

2.1E-01

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CHROMIUM

LEAD

5.8E-03

4.6E-03

MERCURY

6.0E-04

2.0E-04

NICKEL

2.5E-02

4.3E-02

SELENIUM

## VOLATILES

ACETONE	1.7E-02	9.3E-03
BENZENE	1.9E-02	
2-BUTANONE		
CARBON DISULFIDE		
METHYLENE CHLORIDE		
TOLUENE	3.1E-03	
TRICHLOROETHENE		
VINYL CHLORIDE	4.5E-03	

CHEMICAL	SURFICIAL SOIL (MG/L)	SURFACE WATER (MG/L)
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## METALS

ARSENIC	1.1E+01
BARIUM	2.2E+02
CHROMIUM	2.2E+01
LEAD	2.3E+02
MERCURY	1.7E+01
NICKEL	7.5E+00
SELENIUM	7.5E+02

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## VOLATILES

ACETONE

BENZENE

2-BUTANONE

CARBON DISULFIDE

METHYLENE CHLORIDE	6.8E-03
TOLUENE	
TRICHLOROETHENE	
VINYL CHLORIDE	

CHEMICAL	SEDIMENTS (MG/KG)	WASTES
METALS		
ARSENIC	5.2E-03	
BARIUM	2.6E-02	
CHROMIUM	2.4E-02	
LEAD	9.1E-02	
MERCURY	4.0E-04	
NICKEL		
SELENIUM	4.0E-04	
VOLATILES		
ACETONE	4.7E-02	1.2E-01
BENZENE		
2-BUTANONE	1.4E-02	4.0E-02

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CARBON DISULFIDE	1.1E-02	7.0-03
METHYLENE CHLORIDE	6.6E-03	3.9E-02
TOLUENE		5.0E-03
TRICHLOROETHENE		1.1E-02
VINYL CHLORIDE		